

# Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 31

November, 1948

No. 11

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Entered at the Post Office in Minneapolis as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

NOVEMBER, 1948

1163

# MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION  
Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,  
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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# Minnesota Medicine

*Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society*

Volume 31

November, 1948

No. 11

## THE TREATMENT OF OPEN WOUNDS OF THE HAND

MICHAEL L. MASON, M.D., F.A.C.S.

Chicago, Illinois

IT is essential that the surgeon caring for an injured hand know the general principles upon which treatment is based. He should know what he can or should do and what he cannot do. He should recognize that hand injuries are first priority injuries, that the patient cannot be put to bed and cared for in the morning, but must be cared for at the earliest possible moment. He should be guided by the axiom to save all viable tissue and should not feel obligated to perform extensive primary reparative surgery unless he is competent to do so and can anticipate primary healing. He should know that early secondary repair can be accomplished a few weeks after injury in a wound that has healed by first intention with almost as good results as following primary repair. He should keep in mind that secondary operations in wounds that have had disturbed healing are not only very difficult but must often be delayed for many months, entail long sessions of physical therapy, and frequently require multiple operative procedures to obtain often very mediocre results.

There are a few general principles upon which the surgical management of wounds of the hand is based. These principles are all rather interdependent and are premised on a concept of wound care from the standpoint of wound healing.

### Primary Healing

Success in the management of wounds of the hand depends upon primary healing of the

wound. Disturbances in healing greatly prolong the treatment and increase the disability. A minor infection will prolong the healing time from a normal of seven or ten days to three or four weeks, while a severe infection may prolong the healing many months, may lead to great tissue damage, and may threaten life. If a tendon repair has been done in such a wound, it is certain to be a failure, and secondary repair is not only very difficult but offers slight chance of success.

### Asepsis

Strict asepsis must be maintained throughout all the care of the wound. In most wounds the invasive bacteria have been introduced into wounds after, rather than at, the time of injury. A few wounds, such as the human tooth injury, the autopsy knife and the safety pin from an infected case, introduce serious invasive contaminants, but as a rule, serious wound contaminants are introduced secondarily into a wound. In order to prevent this contamination we must know that the most common sources of invasive contaminants are the nose and throat of the patient, the first-aid man, the doctor, the nurse, or fellow patient. Other less frequent but nevertheless important sources are fingers, unsterile dressings and instruments. One source not often taken into account is the dust in wards and dressing rooms, particularly following a vigorous sweeping or the shaking out or folding of sheets and blankets. Shuffling about in operating and emergency rooms stirs up dust which may contain invasive bacteria.

The open wound should be covered as soon as

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Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, June 7, 1948.

possible with a sterile dressing and not uncovered until it can be done under proper conditions, with all spectators, including the patient, masked. It should not be necessary to stress the need for proper sterilization of instruments and dressings which are used in wounds. One point that deserves stressing is the avoidance of touching or dressing wounds with the fingers, since, next to the nose and throat, fingers are the most potent carriers of virulent contaminants. Probing into wounds, even with a sterile probe, before the wound has been cleansed may carry bacteria into it from the surface.

#### **Prevention of Further Trauma: Mechanical, Chemical, or Use**

There are many kinds of trauma to which the wound or wounded part may be subjected. Use of the part disturbs healing, but we cannot simply tell the patient to keep the hand quiet. While the wounds may be well cared for as far as dressings and the initial operation are concerned, and all the newer remedies tried on it without success, seldom do we see a hand properly splinted, or even splinted at all. Starting with first aid, and throughout all care until satisfactory healing has taken place, putting the part at rest on a splint is an essential element of the care.

But the wound may be traumatized in other ways. For example, the wound may be filled with irritant chemicals in the hope of sterilizing it. This practice is both useless and harmful.

A wound is traumatized also by the mechanical act of operating upon it, and it is only by strict attention to operative technique that the surgeon can keep his operating trauma down to a minimum. Forceful retraction of tissues because of inadequate exposure is one of the most frequent sources of operative trauma. Tissues may be crushed in heavy forceps when they should be handled with the greatest gentleness to avoid irritating them. Very minimal operative trauma to tendons may lead to almost complete functional loss due to adhesions.

#### **Early Care**

Every wound of the hand should be cared for at the earliest possible moment.

Early care starts with first aid. Three very simple indications are to be met, and little elaborate equipment is needed. They are (1) to stop bleeding, (2) to cover the wound at once

with a sterile dressing, and (3) to immobilize the hand. Practically all bleeding from wounds of the hand can be controlled by the pressure dressing and elevation. In a very few cases it will be necessary to apply a tourniquet. Too much emphasis has been placed in first-aid manuals on the tourniquet, which is often applied just tightly enough to cause venous congestion and increase the hemorrhage. The dressing should be large, not so that it simply will cover the wound, but to apply uniform resilient pressure over the whole wounded hand and lower forearm, to control hemorrhage and to help control the edema which is sure to occur. A large dressing tends to splint the hand and so helps to meet the third requirement of first aid, namely, to put the part at rest.

The injured hand should be splinted at once whether or not fractures are present, not only because the patient is much more comfortable, but because further injury is prevented thereby.

Once the patient reaches the doctor's office or the emergency room of the hospital he should receive care at the earliest possible moment. An open wound of the hand cannot be allowed to remain untreated overnight and added to the morning schedule. It is to be remembered that the usually accepted time limit for primary closure of wounds is six to eight hours, and for primary nerve and tendon repair is four hours, and that these limits, particularly the limits on nerve and tendon repair, are much shorter in some types of wounds. The longer the delay, the more likely the establishment of infection and increase of necrosis with resultant anerobic and aerobic saprophytic infestation.

#### **Accurate Diagnosis**

Accurate diagnosis of extent and nature of the injury is essential.

The surgeon should attempt to assess the full extent of the damage at the time the patient is first seen. The examination of the wound itself should be brief, and accomplished with patient and all examiners masked to avoid droplet contamination of the wound. Nerve and tendon damage can be diagnosed by examining for function of the various structures, and for this a few very simple tests are enough to indicate whether the median, ulnar or radial nerves or their branches have been divided. Tendon division can be detected by asking the patient to flex and extend



the different joints of the fingers and thumb and to move the wrist. For these tests it is usually not necessary to uncover the wound itself. The wound is uncovered briefly so that the surgeon can see where it is and know if some type of skin graft will be needed. An x-ray will always tell whether there has been a fracture.

A careful history of the wound from the time of its inception to the time the patient is received in the hospital is essential for intelligent care. When was the wound received? Here we are interested in the number of hours which have passed since the injury, and since an hour or two may determine whether or not we can perform primary closure, this information should be exact. What was the nature of the first-aid care? Have secondary contaminants been introduced into the wound by onlookers or others? Was the wound covered over at once or was it exposed for some time before being dressed? Was it covered with a sterile dressing or was an unclean cloth put over it? What was the nature of the injury itself? Was it due to a relatively clean object or to one which may have carried invasive organisms into the wound with it? What has been done with the wound since it was given first-aid care? Has it been probed or fingered? Has it been frequently uncovered and examined under doubtful conditions of asepsis? Have attempts been made to suture nerves and tendons in office or emergency room? All of the information thus gained will be of value to the surgeon in deciding on the manner in which he will treat the wound.

Has the patient other wounds which may require priority care? These wounds may be of such a nature that they endanger life, and the hand wound must either wait until they have been cared for, or extensive repairs must be foregone and planned on as secondary repairs at a later date.

The general condition of the patient should receive attention. Ordinarily, the patient with a wound of the hand only will not be in shock, but if other wounds are present, shock may develop and must be treated before the hand can be operated upon. If so, the necessary delay may change the surgeon's plan of procedure. Heart and lungs, blood and urine should be examined and the findings recorded. A wise precaution also is to ask the patient when he had his last

meal. Hand wounds of any severity must usually be operated upon under a general anesthetic, and it is wise to empty a full stomach.

### **Surgically Clean Wound**

The contaminated wound should be converted into a surgically clean wound.

A wound seen within a few hours can be converted into a clean wound at once; nerves and tendons can often be repaired and the wound can be closed primarily. If over four hours have elapsed, we can still cleanse the wound and, with proper excision, can close it. After eight hours have elapsed, it is unsafe to close most wounds, although we can perform a thorough cleansing and get it ready for secondary closure. If days have elapsed and severe secondary infection is present, the cleansing of the wound, the removal of necrotic tissue and the other steps making the wound ready for closure are much prolonged and may take weeks or months.

We do not pretend to get any wound bacteria-free. We hope, however, to remove from it the majority of the virulent invasive bacteria before they have had chance to multiply and invade. The tissues will usually take care of those left behind if we leave them in proper condition to do so. Chemicals and antibiotics will not compensate for carelessness in our cleansing of the wound.

Removal of wound contaminants and soiling may be accomplished either by excising all the contaminated tissue or by washing contaminants out. While wound excision would seem to be the ideal method of cleansing a wound, the surgeon seldom encounters a wound in which excision is at all feasible. A much simpler and more efficacious method of accomplishing the cleansing is available in simple soap and water washing of the wounds. This is a procedure which is applicable to all wounds and has been proven effective. The washing is done in a purposeful manner and is not just a matter of painting about the wound with soap and water. Each new group of residents, interns and clerks must be instructed carefully in the matter of washing wounds, and even after they have observed the technique several times, they still require supervision. The surgeon goes after it as if he really meant it. First covering up the wound with sterile dressings to protect it from the wash

water of the skin, he washes the surrounding skin for a full ten minutes, putting both thought and elbow grease into it. This washing is done with ordinary bar soap and sterile water, with soft cotton squares, not brushes, and for this reason we like to refer to the cleansing as washing and not as scrubbing, since that term connotes the use of a brush. The skin is rinsed, and the surgeon changes his rubber gloves and with another scrub set proceeds to wash out the wound itself with a generous amount of soap and water. After a full ten minutes of washing, the wound is rinsed with a large amount of sterile normal saline solution and is ready for draping.

#### Excision of Devitalized Tissues

Excision promotes healing by removing tissue which is destined to become necrotic. It is the removal not so much of bacteria as it is of bacterial food. Dead and devitalized tissue must be removed from the wound, if not at the time of primary care, then later either by the body tissues themselves or by bacterial decomposition. Surgeons are realizing more and more that the reason many wounds go "foul" is not simply because of the presence of virulent bacteria, but because of the presence of pabulum for organisms not primarily virulent but which thrive on products of tissue decomposition. Chemotherapeutic agents and the antibiotics will not take care of dead and dying tissue, and their use will not prevent the development of infection if nonviable tissue is left behind.

Wound excision need not be wide and radical; the surgeon is not attempting to remove the whole wound surface, only tissue destined to die. In the case of certain tissues, such as muscle and fat, the surgeon can be rather liberal; in case of tissue such as tendon, nerve and bone, he must be very conservative and remove only what is certainly destroyed or nonviable. Skin must not be needlessly sacrificed, but the surgeon should not leave avascular flaps to become gangrenous.

How are we to recognize devitalized tissues? Ordinarily, skin which is white, grey or purple is destined to succumb. Skin which looks like third degree burn skin is hopelessly injured. We can get some idea as to skin viability by considering the type of injury which has occurred. Clean-cutting wounds or sharply lacerated wounds will not produce much skin damage, while wounds due to severe crushes, abrasions and ex-

plosives must be very carefully considered since the skin may be so badly damaged that it cannot live. Wounds due to heavy weights falling on the part, even though the skin may look healthy at the start, are very productive of necrosis not only of the skin but of the deeper tissues as well. Gunshot wounds may not cause much damage to the skin even though the deeper tissues may be badly disrupted, and excision of a very narrow strip (a few millimeters) is sufficient. In the palm of the hand the surgeon must be very careful in his evaluation of the skin in case of injuries due to heavy weights falling on the hands, wounds due to machinery or other heavy objects moving across the palm, or falls in which the patient has slid for a distance on his palm. In such cases the epidermis will be seen to be lifted away from the underlying dermis, and the latter will have been torn and crushed severely without any external evidence of it. One or two days later, if the hand is examined, the thick epidermis will be found to be lifted up by a hemorrhage, and when this is removed a necrotic dermis will be found. These areas of skin damage must be excised at the start.

Flaps with pedicles distally are not likely to live unless they are very small. Flaps with pedicles proximally will usually survive if they are treated with a resilient pressure dressing to prevent congestion. The surgeon can gain some idea as to viability of flaps if he watches the return of circulation into them during the phase of active hyperemia after the blood pressure cuff has been released. Two things are to be watched for: a return of circulation as evidenced by reddening of the skin, and venous congestion as evidenced by a purple coloration. Skin which remains white following release of the cuff is avascular. The surgeon must wait a few minutes before making this decision since the circulation does not return at the same rate in all areas of the skin. Areas originally white will often show a slow return of reddish blush and finally come back satisfactorily. Skin which is dark and purplish after the initial blush may not be hopeless but may survive if the veins are properly supported by a compression dressing, and the surgeon can get some idea as to this by maintaining gentle pressure on the questionably viable skin for a few moments and watching its behavior. If under gentle pressure, which supports the venous return, the skin is pink and normal appearing, the surgeon can assume that

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if this same resilient pressure is exerted by the postoperative dressings, the skin will survive.

Nonviable muscle is usually grey or greyish red; it does not contract and does not bleed. Here,

done; if such healing cannot be anticipated, then deep repair must be postponed until a later date, and undertaken as a secondary operation under more favorable conditions.



Fig. 1. Primary repair of extensor pollicis longus tendon. Wound was seen within one and a half hours, cleansed with soap and water, irrigated with normal saline solution. Thumb was splinted in abduction and extension for five weeks following surgery. Primary healing. Result at end of seventh week.

again, the history of the injury is valuable, since with severe crushing wounds, muscle is likely to be devitalized. The surgeon can be fairly liberal in muscle excision if in doubt.

Bone should be conserved if viable. Any bone fragments still attached to periosteum should be considered viable, but loose fragments should be removed.

Tendon should be submitted to a minimal excision. Ordinarily, only if severely crushed and shredded, should it be excised. Certainly the clean cut ends of tendons in sharply lacerated wounds can usually be left alone. Over the dorsum of the hand in crushing wounds, the extensor tendons are likely to be badly torn and frayed, but even here any healthy looking shreds should be saved if they can be used to conserve continuity. Nerve, likewise, should not be excised. Nerve is remarkably viable even if it is badly frayed.

### Extent of Primary Repair

The extent of primary repair permissible in the open wound should be determined.

After the surgeon has properly cleansed the wound and has excised nonviable tissues, he should decide on the amount of surgical repair to be done. To reach this decision he must ask himself several questions. The first is: Can primary healing of the wound be expected? If the wound can be expected to heal by primary intention, extensive nerve and tendon repair may be

The decision to perform deep repair will depend also on the nature of the wound itself. Sharply cut wounds, such as are produced by broken glass, knives, tin cans, et cetera, do not cause a great amount of tissue damage beyond the actual tissue division. On the other hand, some lacerated wounds due to heavy jagged edges of stones, punch presses, et cetera, cause considerable damage to the edge of the wound; the divided structures are likely to be macerated and torn, the tissues disrupted and often avulsed. In wounds of this type a fair amount of excision will be required to remove the nonviable tissues, and those viable tissues left are often far from normal and may not be suitable for primary repair. In wounds of this nature, the surgeon should usually refrain from immediate nerve and tendon repair.

Crushing injuries and wounds associated with compound fractures and joint injuries, and wounds with such loss of covering tissues as to require skin grafts for closure are not suitable for tendon repair. A tendon sutured over the site of a compound fracture is certain to become densely adherent to the bone callus and a secondary operation will undoubtedly be required.

Can the wound be completely closed with a satisfactory layer of skin and subcutaneous tissue over the site of nerve and tendon repair? If the wound cannot be closed because of the probability of serious contamination, or because it has been received too late to permit closure, nerve and ten-

don repair are out of the question. If it is necessary to use some type of graft to close the wound, nerve and tendon repair are also precluded unless the grafts are laid on some spot away from the actual site of suture. While split grafts will take over bone and tendon if there is a thin layer of areolar tissue between them and the graft, we cannot place grafts over a sutured tendon or over the site of nerve suture, or over bare bone with any chance of success. Occasionally it is possible to shift a flap of skin in such a way as to cover the site of a tendon repair and to cover the defect left by shifting of skin with a split graft.

There are several other general considerations which should go through the surgeon's mind when he attempts to decide on the extent to which a wound should be repaired as a primary procedure.

He should have adequate assistance if extensive repairs are to be undertaken. Without skilled help, the man who tries to repair a number of tendons in the wrist or fingers, or to close a complicated wound after delicate deep repair, finds himself in more and more difficulty. A competent anesthetist is needed to carry the patient through a long operation with safety, since these operations can seldom be done under local anesthesia.

The surgeon must not be rushed but must take all the time needed to finish a long and difficult task. If he is not willing to take all the time needed to do the job correctly, then both he and the patient are better off if the repair be skipped and a secondary repair done later under less trying circumstances.

The surgeon should know how to perform the technical steps necessary to repair nerve and tendon. If not, he should not attempt them, but simply close the wound, since an incorrect technical repair is not only bound to be unsuccessful but also makes the secondary operation very much more difficult, if not impossible.

The surgeon who does nerve and tendon repair should be acquainted with the proper after-care for these operations. He should know how to splint the hand, how long to leave the splint on, and how to start motion in different types of tendon repair and for support of the small muscles paralyzed by nerve division. He should be willing to watch the patient through the long months often necessary for recovery and know how to judge the course of recovery. While many of

these considerations may not loom very large when the case presents itself and in the first few weeks after operation, they become increasingly important as time wears on—particularly important if too early use leads to separation of a tendon which had been moving a finger quite well until a slight force was exerted—important if the question of nerve regeneration leads to doubt as to whether or not a proper suture had been performed.

A few specific considerations may be discussed as to primary tendon, nerve and bone repair.

*Time since injury* is a most important consideration in determining whether or not to perform a tendon suture. It may be taken as a strict rule never to do a primary suture of tendons in wounds over four hours old, and this upper limit is to be taken only in clean-cut incised wounds. In the case of tendons divided in the digital sheaths, the absolute upper limit within which it is permissible to perform a primary suture is two hours, and then only in cleanly cut wounds, e.g., test tube or burette lacerations, milk bottle cuts, et cetera. Where these time limits are overstepped, the general wound therapy is carried out, closure is accomplished if indicated, and the tendon repair postponed until a later date:

Where primary tendon repair is indicated, all tendons are carefully sutured individually. Where the profundus and sublimis tendons have been cut within the finger (usually at the base of the proximal phalanx), only the profundus is sutured and the sublimis slips are excised. If both tendons are repaired, there are produced three tendon calluses which become adherent to each other, and to the phalanges as well, so that poor or no function results. When suture is accomplished in the fingers, it is essential to excise a window from the fibrous sheath overlying the site of repair so that the healing tendon lies in contact with soft well-vascularized subcutaneous tissue from which it can obtain a good blood supply during its healing period. If the blood supply is obtained from the fibrous tendon sheath, the healing tendon will become adherent to dense fibrous tissue.

There are a number of methods devised for the suturing of tendons. As long as they follow certain principles they will be successful. To secure end-to-end union, the tendon ends should be opposed accurately, and no foreign matter, suture



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or blood clot should lie between them. The opposed ends of the tendon, which are playing a very important part in the process of repair, should be as free of suture material as possible

added to silk is very likely to be irritant. Silk is preferable to cotton, since it seems to me to be somewhat smaller, strength for strength, than cotton, and there seems to be very little difference



Fig. 2. Primary repair of flexor tendons of fifth finger and of sensory branches of ulnar nerve two hours after injury. It was necessary to enlarge the wound in the palm by a curved distal incision, and to prolong the proximal end of the wound across the wrist by a curving incision toward the ulnar side. Primary healing. Splinted to relax the sutured nerve and tendons for three and a half weeks. Result at end of two months.

so as to leave the proliferating ends free. In very occasional cases a side-to-side suture of tendon may be done, but not often without the danger of producing shortening and a bulbous adherent line of union. Hence, an end-to-end suture is most often used.

Just as there are various methods used to secure tendon suture, so there are various materials used for sutures. As requisites for tendon suture material we may specify fine diameter, tensile strength of about 4 to 5 pounds, and relative non-irritability in the tissues. Catgut, although occasionally used by the general surgeon who attempts a tendon suture, has been given up by men who have had experience with this type of work. The three materials which are most used today are silk, cotton and stainless steel wire. These three are all practically nonirritant to the tendon and possess very satisfactory tensile strength in their finer grades. My own preference is for silk of the untreated variety, since I feel that any substance

in irritant properties between the two. Steel is a bit difficult to handle, and there is always the danger of puncturing the gloves. It seems to be the least irritant of the three, but to my mind this quality is outweighed by the difficulties of handling.

The technique of suture which has proved successful in our hands is one in which the suture pulls transversely across the tendon, and then turning at a right angle across the knot of another suture, pulls in the long axis of the tendon. These appositional sutures are paired, two being introduced into each of the stumps about 1.5 cm. from the cut end, and are tied to each other on the outside of the tendon. The ends are then accurately opposed by means of several very fine silk sutures which pass through the sheath only.

It is important in repairing tendons to leave retaining ligaments sufficiently intact to prevent bow stringing. The transverse carpal ligament, if it has been divided, should be repaired at the

end of the operation. While doing the repair of tendons in the fingers, it has been advised to cut out a window in the sheath. This window does not destroy the retaining apparatus of the finger tendons but leaves the sheaths intact above and below, and bowstringing does not take place. To be avoided is the complete division of the fibrous tendon sheath in the finger since if this is done, the repaired tendon will pull forwards and a serious functional disturbance will follow.

A few specific details of indications and technique apply to the problem of nerve suture. As far as the time interval between injury and repair is concerned, it is my feeling that nerves may be safely sutured up to the time limit within which the wound may be closed. If the wound is seen too late to permit primary closure, then it is probably not wise to attempt nerve repair, although it may be permissible to place a single suture through the perineurium of the two ends and to bring them together loosely to prevent separation.

There is some discussion today as to the advisability of performing primary nerve repair at all. Some surgeons believe that because of the softness of the freshly divided nerve ends and the great difficulties experienced in performing a primary suture, it is much better to wait until the wound has healed and to perform a secondary suture by choice. At the time of secondary repair the ends will be found to be slightly fibrosed and more easily handled; it will be possible at that time to determine the extent of nerve damage by slicing the nerve stumps until normal cross sections are obtained. It is pointed out that at first it is not always easy to determine the extent of nerve damage because of the disruption by the injury. At time of secondary repair it is said, however, the extent of damage can be accurately determined. I cannot agree with this position, granting the greater technical ease of secondary repair. Restoration of continuity at the time of primary operation offers the best chances for nerve regeneration and avoidance of trophic changes which are sure to occur if the ends are not united. If nerve suture is permissible, primary suture is the procedure of choice.

Recognition of nerves in the primary wound may be difficult because of the suffusion of blood into and about them. The surgeon will save time if he goes above and below the site of injury to

seek for the nerve in normal tissues and under normal relations, and then traces it to the site of the wound. Nerve should not be confused with tendon if a few distinguishing characteristics are kept in mind. The vascularity of nerve gives the clue to its identity, for whereas tendon is white and glistening and almost homogeneous on first glance, nerve is pink and striated, and soft. Often a vessel can be seen coursing over the surface of the nerve. In case of the median nerve this is invariably present and may be a very sizable artery.

Hemostasis in case of nerves must be perfect, since if a clot comes between the ends, it forms an almost certain barrier to the downgrowth of axones.

The opposition of the nerve ends must be perfect so as to leave no gap which will fill up with clots and serum. The ends must match as closely as possible so that corresponding nerve bundles are opposed. This is not always easy in wounds in which there has been great disruption of tissues, and the nerve ends have been dislocated. In clean-cut wounds, however, the surgeon can often orient the nerves by placing a fine silk suture through the perineurium of each stump before mobilizing it, marking corresponding points on each stump. Some clue as to matching bundles is gained from an inspection of the cut ends. Where there has been a large gap between the stumps, the bundles may no longer correspond, and in such instances the best guide to correct alignment is to place the nerve in its anatomic position and see how "it wants to lie" and suture it in that alignment.

It should not be necessary to caution gentleness in handling the nerve ends, to avoid crushing them or grasping them in forceps. Suturing should be done with the finest of silk. We prefer 7-0 ophthalmic silk swaged on very fine needles. The sutures must pass only through the perineurium and *not* through the substance of the nerve. A number of sutures are necessary: eight to twelve on a median or ulnar nerve, three to four on a digital nerve.

The suture line must be placed in a position where it is not involved in scar or becomes attached to callus or healing tendons. It is usually possible to place the sutured nerve in a bed of fat or muscle.

There is still some discussion as to the need

(Continued on Page 1205)

## THE MANAGEMENT OF VASOMOTOR RHINITIS

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**P**ATIENTS with vasomotor rhinitis present a vexing problem which not infrequently is difficult to solve. The reasons for the trouble in the management of this condition lie for the most part in the fact that this disease is, as yet, incompletely understood. In all probability, vasomotor rhinitis represents a group of conditions which have similar symptoms. Although in a broad interpretation, vasomotor rhinitis is included in the group of allergic diseases, many factors not directly resulting from hypersensitivity may be of major importance in its causation. In vasomotor rhinitis in which contact with allergens is of most importance, nonallergic factors play secondary but nevertheless important roles. At times, vasomotor rhinitis appears to arise solely from factors present within the body.

Although uncomplicated vasomotor rhinitis is not a serious disease, the problems of social adjustment which sufferers from it present may make the disability a major one. Diseases secondary to vasomotor rhinitis, particularly chronic infections of the paranasal sinuses, also frequently give trouble.

The symptoms of uncomplicated vasomotor rhinitis are most commonly intermittent. They often assume a diurnal pattern of exacerbations and remissions regardless of contact with offending substances. Symptoms are likely to be more severe in the morning and to reach their greatest severity at about the time the patient rises. After a stormy phase which may last minutes to several hours, the symptoms gradually abate and the patient is relatively comfortable. Some patients experience a less pronounced return of symptoms in late afternoon, particularly with fatigue.

Nasal congestion, with associated decrease in breathing space within the nose, is the most common complaint offered. Usually there is some nasal drainage which may be one of two types. Most characteristic is a watery secretion from the anterior part of the nose which may drip from the nose if the patient flexes his head. The other type consists of more than a physiologic amount

of postnasal drainage of mucoid material. This type of nasal drainage characteristically occurs between the acute paroxysms of nasal congestion. Sneezing is usually, although not necessarily, associated with vasomotor rhinitis. Patients who have nasal allergic disease sneeze many times in quick succession, whereas those who have a common cold rarely sneeze more than three times. This observation is a point of diagnostic value. An intense sensation of itching in the conjunctiva, palate and ears often occurs in extrinsic vasomotor rhinitis. Discomfort in the region of the paranasal sinuses frequently is observed by patients during paroxysms of vasomotor rhinitis.

The symptoms of vasomotor rhinitis gradually become more persistent if polypoid degeneration of the nasal mucosa develops. Not infrequently interference with drainage of the paranasal sinuses leads to retention of secretion and is followed by chronic infection of these cavities.

The pathologic changes associated with vasomotor rhinitis vary with the severity and the duration of the condition. Grossly the mucous membrane becomes boggy, pale and somewhat bluish. In cases of longer duration, polyps may develop. The nasal secretion in allergic vasomotor rhinitis contains a considerable number of eosinophilic leukocytes, and this finding is a point of diagnostic importance. In cases in which chronic sinusitis has developed, purulent secretion may be observed, usually in the middle meatus of the nose or on the posterior pharyngeal wall. Nasal secretion contains no reducing substance; this characteristic of nasal secretion is of value in differentiating the drainage of vasomotor rhinitis from cerebrospinal rhinorrhea. When the patient presents a history of meningitis or of severe injury to the head, the possibility of cerebrospinal rhinorrhea should be considered. Cerebrospinal rhinorrhea may occur spontaneously and is suggested in those instances wherein unilateral drainage occurs. All known factors contributing to vasomotor rhinitis should be considered and their roles evaluated in each case. It has been found helpful to approach the treatment of vasomotor rhinitis with a consideration of the etiologic fac-

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tors and complications. These are listed in the following outline.

1. Etiologic factors.
  - (A) Allergic factors.
  - (B) Physical allergic factors.
    - (1) Exaggerated nasal responses to normal stimuli.
    - (2) Exaggerated nasal responses to increased stimuli, usually occupational.
  - (C) Neurogenic factors.
  - (D) Endocrine factors.
    - (1) Hypothyroidism.
    - (2) Pregnancy.
    - (3) Menopause.
  - (E) Chronic nasal irritation.
    - (1) Physical irritants.
    - (2) Chemical irritants.
    - (3) Infections.
      - (a) Chronic sinusitis.
      - (b) Acute respiratory infections
  - (F) Intranasal structural abnormalities.
2. Complications of vasomotor rhinitis.
  - (A) Chronic sinusitis.
  - (B) Polypoid degeneration.
  - (C) Vasodilating pain syndrome.

A brief description of the diagnostic factors and special features in the management of vasomotor rhinitis, due to various etiologic factors, and of the complications will be given. Then certain specific therapeutic procedures will be considered.

### Allergic Factors

In an evaluation of the allergic factors in vasomotor rhinitis, several criteria may be considered. The age at which this disease appears is significant. True allergic vasomotor rhinitis most commonly appears before the patient is forty years old. Vasomotor rhinitis in younger individuals does not always indicate the presence of a specific allergic factor; nevertheless, in most instances there is one. The occurrence of allergic diseases in other members of the family, or the coexistence of other manifestations of allergy in the patient, is suggestive of an extrinsic causation for vasomotor rhinitis. Patients in families presenting allergic diatheses are more subject, however, to vasomotor rhinitis of both allergic and other types.

An allergic survey should be undertaken, and skin tests should be made with common allergens with which the patient may come into contact. It is good practice to include at least the inhalant and ingestant allergens shown in the accompanying list in such a survey.

In addition to these substances, the occupational, recreational, domestic and dietary allergens that the patient may encounter should be con-

sidered and the necessary tests made. It is well also to evaluate the role of miscellaneous substances, such as cottonseed, flaxseed, karaya, molds and wool, in causing the disease. We have largely excluded from consideration in this presentation the testing of patients for seasonal symptoms resulting from pollinosis.

Sensitivity to the substances among the inhalants should be tested by the intracutaneous method. When pollens are in the atmosphere or when the patient is known to have pollinosis, the pollen extracts are best omitted from the group of allergens tested intracutaneously, inasmuch as the small amount of an extract of a pollen injected into the skin may evoke an untoward response. For children for whom intracutaneous testing may prove objectionable, scratch or passive transfer skin testing may be substituted.

<i>Inhalants</i>	<i>Ingestants</i>
Mixed ragweed	Buckwheat
Orris root	Corn
Timothy	Oats
Cat hair	Rice
Cattle hair	Rye
Dog hair	Whole wheat
Goat hair	Whole egg
Horse hair	Beef
Rabbit hair	Chicken
Chicken feathers	Pork
Duck feathers	Lamb
Goose feathers	Cocoa
House dust	Whole milk
Kapok	Orange
Pyrethrum	Peanut
	Potato

Sensitivity to the substances among the ingestants is best determined by the scratch method. Equivocal results may be re-evaluated by intracutaneous testing if this should appear to be warranted. When the history is negative for trouble following ingestion of substances contained in this group, tests may be omitted for most patients who first develop nasal disease at an age past forty years.

Instructions in the avoidance of substances yielding positive reactions on skin tests should be outlined definitely in the case of inhalant allergens and should be considered in the case of ingested allergens.

In most cases in which there is an allergic factor, a plan for a dust-free bedroom should be provided. The preparation of such a room should include the removal of rugs, overstuffed furniture, drapes, the contents of closets and all other common sources of dust. Covers impervious to dust should be applied to both the pillow and



mattress. If there are two beds in the room, both should be prepared in this manner. Feather ticks and down comforters should be discarded. Woolen bedclothes devoid of lint may be used, and a generous fold of sheet should be placed over the upper portion of the blankets. Changing and storage of clothing should be done outside this room. Small animals should be kept from the room. Steam or hot-water heat is preferable to hot-air heat. If hot-air vents are in the room, filters of dust-proof fabrics should be provided for these. This room should be cleaned daily with a damp cloth rather than by sweeping or by a dust mop. Should the patient be a child, it is unwise to allow the use of stuffed or fur-trimmed toys.

When the avoidance of contact with an offending inhalant allergen is impossible, the advisability of specific desensitization should be considered. Results from desensitization are less favorable than one might wish. When results are good, the benefit sustained is frequently transient. Scrupulous avoidance of offending allergens remains the most effective form of therapy.

With regard to ingestion of allergens, it is possible that the conscientious patient may place too much emphasis on the problem, since it is uncommon for food to be of major importance in the etiology of vasomotor rhinitis which begins after the fourth decade of life. In use of diets designed to exclude offending foods, it must be remembered that no diet should allow the patient's nutrition to suffer. Brief trial periods of no greater duration than one month usually suffice to answer a physician's question concerning the role of ingested allergens. The occurrence of a positive reaction to a skin test is, in itself, insufficient evidence to omit from a diet nutritious foods known clinically to be tolerated. Through use of bizarre and inadequate diets, many patients will cause their health to suffer more than it would from the atopic disorders prompting the use of such diets.

#### Physical Allergic Factors

The role of "physical allergy," which usually means hypersensitivity of the patient to changes in temperature and the cooling effect of moving air, recently has been emphasized in vasomotor rhinitis.<sup>6</sup> Patients exhibiting this disturbance have grown extremely sensitive to such stimuli as wide variation in their environmental temperature, the

moving air from fans, ventilating devices and air-conditioning systems, or contact of the skin with cold objects. Brief exposures to such stimuli will serve to evoke a response in the nasal mucosa far greater than the minimal physiologic responses noted in the great majority of individuals. The relationship between vasomotor rhinitis resulting from physical allergy and that from other etiologic factors is probably a close one. Patients with an essentially allergic vasomotor rhinitis often will exhibit an exaggerated sensitivity to the changes in temperature of their environment.

Patients who have physical allergy can be classed into two groups. The larger group consists of patients whose nasal responses are exaggerated to the usual changes in temperature which are well tolerated by most normal individuals. The smaller group is comprised of persons who are affected by wide variations of temperature or excessive movement of air encountered in their occupations. In this group are included butchers, florists, dairy workers, grocers, gas station attendants and others whose activities or occupations necessitate their frequent entrance into ice-boxes, refrigerated rooms or frequent passage in and out of doors. In such patients the nasal reflex responses may be normal to the usual stimuli but are exaggerated to occupational stimuli of greater degree.

Patients in both groups should strive to live in a constant environmental temperature in an atmosphere which is devoid of drafts. Rooms should be adequately humidified and heated without excessive movement of air from ventilating systems. At night the windows should be kept closed in order that the temperature may be maintained at 65° F. or more. The bed, chairs, desks and parts of the house frequented by the patient should be arranged so that he can avoid cross ventilation. Care should be exercised to minimize as much as possible the necessity for entering air-conditioned buildings and theaters. Adequately warm dress should be encouraged. Minor changes in routine followed in the course of an occupation may greatly lessen contact with the objectionable factors listed.

#### Neurogenic Factor

The neurogenic factor is a major contributing cause in the production of nasal symptoms of many patients. The responses observed in vasomotor rhinitis result from a reflex mechanism,

and their severity may be appreciably altered by the emotional state. Therapy directed toward the correction of any underlying nervous tension frequently will decrease the severity of nasal symptoms. Likewise, it is apparent that the patient's ability to tolerate discomfort of constant degree will be appreciably diminished by a tension state.

### Endocrine Factors

Nasal changes characteristic of vasomotor rhinitis are observed in the course of certain endocrine disturbances. Lillie and Haines<sup>4</sup> called attention to such a disturbance among patients who have excessively low metabolic rates but do not have myxedema. An elevation of the metabolic rate in such cases is often associated with a regression of nasal symptoms. Vasomotor rhinitis likewise is at times a troublesome complication of pregnancy. Termination of the pregnancy through parturition often brings remission of the symptoms. Women experiencing vasomotor instability associated with the menopause will at times find a paroxysm of vasomotor rhinitis beginning with the flushes. Treatment with estrogenic substances is of value in such instances.

### Chronic Nasal Irritation

Even in the absence of definite evidence of sensitivity, patients who have vasomotor rhinitis should exercise every precaution to avoid contact with physically irritating substances which might further aggravate their nasal condition. The use of a dust-free bedroom, the disposal of rug pads, and adequate slip covering or disposal of overstuffed furniture will serve to minimize common sources of nasal irritation.

Certain physically irritating habits may develop. Habits of sniffing, hard blowing, hacking and other objectionable practices into which the victim of vasomotor rhinitis may fall should be discouraged.

Likewise, chemical irritants should be avoided if everything therapeutically is to be done to control the vasomotor rhinitis. Tobacco smoke, occupational fumes and contact with heavily scented objects frequently will initiate a paroxysm of nasal congestion or sneezing. To be discouraged is the practice of self-medication by nose drops, sprays and irrigations.<sup>3</sup> Although many of these astringent solutions will shrink the nasal membranes for brief periods, the irritation they

provoke in so doing serves only to aggravate ultimately the chronic nasal disease.

The drainage of secretions from the paranasal sinuses is impaired by mucosal edema during a paroxysm of vasomotor rhinitis. Polypoid degeneration of the nasal mucous membrane likewise will disturb adequate drainage of the sinuses, thus tending to bring about a chronic infection in these chambers. Conversely, the constant seepage of irritating and infectious exudates serves to perpetuate the changes noted in vasomotor rhinitis. Should other measures in the management of vasomotor rhinitis fail to bring about regression in the size of polypoid tissue and fail to produce sufficient drainage to allow subsidence of chronic sinusitis, intranasal surgical procedures may be warranted. The use of radium to effect a subepithelial fibrosis after polypectomy helps to prevent recurrence of the polyps. Radium applied to lymphoid structures in the nasopharynx is at times valuable in securing adequate drainage from the paranasal sinuses. A transient type of vasomotor rhinitis at times is observed for days to weeks after upper respiratory infections.

### Intranasal Abnormalities

A widely deflected nasal septum, nasal spur or markedly hypertrophied nasal turbinates through contact with other intranasal structures may reflexly initiate changes in the nasal mucous membrane which are characteristic of vasomotor rhinitis. The surgical correction of such structural abnormalities in the treatment of vasomotor rhinitis should be deferred until more conservative methods of therapy have proved ineffectual. Before each surgical procedure is undertaken, its probable benefit should be weighed carefully against the disturbance of intranasal physiologic processes which may follow the operation.

### Complications

In addition to the polypoid degeneration and chronic inflammatory changes so often observed consequent to vasomotor rhinitis, which were mentioned under chronic irritation, there is a third complication, the vasodilating pain syndrome.<sup>7</sup> Often patients who have this complication complain bitterly of discomfort in the region of the nasal accessory sinuses, but no active inflammatory changes are evident within the sinuses. At times, fatigue or tension serves to aggravate the severity of symptoms of "stuffiness" or "fullness"

which occur in the course of vasomotor rhinitis. When pain about the face is the presenting symptom, care should be exercised to exclude an underlying though minimal vasomotor rhinitis as an etiologic factor. At times vasomotor rhinitis will serve to initiate pain of the so-called sphenopalatine ganglion syndrome wherein the reference of pain extends from the region of the eye to the ear and into the neck.<sup>5</sup>

### Specific Treatment

The number of specific forms of therapy for vasomotor rhinitis recommended in the literature suggests the situation existing in the pre-insulin era of diabetes mellitus. No one form of treatment has been spectacularly successful to the exclusion of other procedures. There are, however, a number of useful procedures which deserve consideration because of their advantage in selected cases.

• The recent advent of drugs manifesting antihistaminic properties represents an advance in the treatment of vasomotor rhinitis. The use of  $\beta$ -dimethylaminoethyl benzhydryl ether hydrochloride (benadryl) and N,N-dimethyl-N'-benzyl-N'-( $\alpha$ -pyridyl) ethylenediamine monohydrochloride (pyribenzamine hydrochloride or triplennamine hydrochloride) is of value in these nasal allergic disorders. Using the latter drug, Feinberg<sup>1</sup> found that 64 per cent of patients with vasomotor rhinitis were helped. The usual dosage employed in treatment of vasomotor rhinitis with either benadryl or pyribenzamine is 150 to 200 mg. daily in three or four divided doses. The drug is preferably administered after meals and at bedtime.

The use of nicotinic acid is helpful in cases in which the "physical allergy" component is of greatest importance. It is of value because of its vasodilating properties and not because of its relationship to the vitamin B complex. It is good practice to administer nicotinic acid as follows: Injections are administered subcutaneously in daily doses beginning with 25 mg. These are increased by increments of 25 mg. daily to tolerance or until a dose of 100 mg. is attained. Subcutaneous injections of 100 mg. are continued daily for one month. If improvement takes place, an

additional two months of parenteral therapy is advisable, after which nicotinic acid may be given by mouth instead of parenterally. When the drug is given by mouth, the dose tolerated is usually from 150 to 200 mg. daily in divided doses.

Histamine therapy<sup>2</sup> has on occasions proved useful in a few cases of vasomotor rhinitis.

Cauterization of the nasal mucous membrane in the region overlying the sphenopalatine ganglion with a 50 per cent aqueous solution of silver nitrate will at times give temporary relief. This had best be done by one well acquainted with intranasal procedures in the therapy of nose and throat diseases.

Iodides, administered orally in the form of the potassium or sodium salt, remain especially valuable in the care of patients whose primary complaints are referable to inspissated mucus in the nasopharynx and on the posterior pharyngeal wall. Such mucus is thinned, a procedure which relieves the nasal irritation associated with such dried secretions. In hypersensitive individuals, having an unwarranted fixation of their attention on their nasal functions, such treatment is especially helpful.

### Comment

We have much to learn about nasal physiology and disturbances which may take place in the functions of the nose. This program for the management of vasomotor rhinitis has proved useful in many cases and has helped as a guide in the study of patients presenting the troublesome condition of vasomotor rhinitis.

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## CHOLINE AND OTHER LIPOTROPIC FACTORS

### Mechanism of Action and Significance in Chronic Liver Disease

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**A** LIPOTROPIC factor may be defined as an agent which prevents or removes an accumulation of excess fat in the liver. For the purpose of this discussion, the factors so far found to have a lipotropic action may be grouped on a biochemical basis. The first group consists of choline and the compounds which have been established as exerting their lipotropic action by virtue of their role in choline synthesis *in vivo*, namely, betaine and methionine. In a second group may be placed those factors whose exact nature and method of action are at present uncertain, namely, lipocaic and inositol.

Among those investigating these factors in the laboratory there has been and remains considerable difference of opinion as to the nature and mechanism of action of some of the lipotropic agents. While a certain unanimity of opinion regarding the choline group has been reached insofar as its use in the laboratory is concerned, the status of lipocaic and the pancreas factor is still a controversial point. This has partly been due to the many variables present:

1. The make-up of the dietary feeding used before and during the test period.
2. The duration of the test period.
3. The amounts of the test substances being used.
4. The experimental animal.

It is the purpose of this discussion to make an attempt at resolving some of the divergent opinions now extant, by a presentation and comparison of the experimental findings to date.

It is also important to note the considerable significance of these experimental findings in the pathogenesis of the cirrhotic states. Cirrhosis is considered by many to be the end point of a process initiated by fatty infiltration. On this basis the lipotropic factors have been used as therapeutic agents in the acute, infectious and toxic forms of hepatitis and in established cirrhosis with varying results.

#### The Choline Group

Choline is an amine—trimethyl beta hydroxy ethyl ammonium hydroxide— $(\text{CH}_3)_3 \text{N.OH}$ .

$\text{CH}_2\text{CH}_2\text{OH}$ . In a consideration of its lipotropic action, the process of fat transport from the liver must be understood. As neutral fats and fatty acids are insoluble in blood, they must be converted to phospholipids. Paul and his associates stated in 1947 that fat metabolism is not a simple breaking down of the ingested fat for immediate use and a storing of the remainder in inert depots. Storage is a phase in a dynamic equilibrium. The essential factor is fat transport. It is thought that this change to phospholipids in the liver is effected by the incorporation of phosphoric acid and choline into the fat molecule. In 1944 Peters, Kendrick and their associates stated that choline furnishes labile methyl groups for the synthesis of phospholipids from fatty acids. However, in 1946, McArthur, investigating the incorporation of a choline homologue into liver phospholipids, found arseno-choline, which possesses no labile methyl groups, to be lipotropic and incorporated in the phospholipid molecule after experimental feeding.

The bulk of the evidence to date indicates that choline is the most powerful of the lipotropic factors in experimental work on the rat and is effective in reducing the total lipid level in the liver in all fractions.

The speed and strength of action of choline depends on several factors:

1. The constituents of the diet presented to the rat before and during the test period.
2. Choline is concerned with lipid phosphorylation in the small intestine as well as in the liver, and hence, part of the ingested choline will be utilized in the intestine. Artom and Cornatzer in 1946 reported their experiences in this connection with radioactive phosphorus.
3. While choline is known to act by increasing the rate of phospholipid "turnover" in the liver, the rate of loss of lipids from the liver, i.e., lipotropic activity, does not necessarily parallel this rate of turnover. Horning and Eckstein in 1946 reported their investigations on this subject using radioactive phosphorus. It was concluded that an increase in phospholipid activity does not necessarily connote an increase in fat metabolism. Only



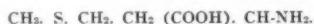
when the phospholipid shift is from liver to blood is lipotropic activity manifest.

There is little doubt that plasma phospholipids are formed in the liver, and hence, the phenomenon of lipotropism occurs. Entenman and his collaborators in 1946 found in *normal* dogs that specific activity of the choline-containing phospholipid phosphorus of the liver, as measured with P 32, is higher than in plasma phospholipids. This would suggest that nearly all the phospholipids of the plasma are formed in the liver.

4. Choline has other actions in addition to its lipotropic effect. It is, of course, a precursor of the neurohumor acetylcholine. Its deficiency has been found to produce hemorrhagic kidneys in experimental animals, an occurrence apparently closely related to the development of fatty livers. Best and others have emphasized its role in growth. Several observers have noted that the strength of the lipotropic action can be impaired under certain circumstances because a portion of the ingested choline is taken up with the above processes.

#### Betaine and Methionine

It is now accepted almost unanimously that the alkaloid betaine and the amino-acid methionine are not unique as lipotropic factors but exert an effect by supplying methyl groups for the synthesis of choline *in vivo*. The availability of methyl groups in methionine is indicated by its formula:



In 1946, Du Vigneaud and his group investigated betaine in transmethylation reactions. They labelled the methyl groups with deuterium and the glycine component with N 15. They also fed glycine labelled with deuterium. These two compounds were fed to pairs of rats receiving choline-free diets. In the betaine animals, choline and creatine were isolated from tissues and analyzed for deuterium and N 15. The glycine animals were similarly investigated for deuterium. Du Vigneaud's results show that methyl groups from betaine appear as quickly in tissue choline as when choline is given. This would signify a direct conversion. However, the N 15 of the glycine moiety apparently does not undergo this direct conversion. It appeared rapidly in tissue glycine and much more slowly in tissue choline. It is probable that the N 15 goes to the choline

through glycine and ethanolamine. The dimethyl glycine was found to contribute a very small amount of methyl groups to tissue choline, but did not appear to exert a lipotropic effect.

Du Vigneaud presented similar evidence to the above to show methionine's action in lipotropism.

The ability of methionine to offer labile methyl groups has also been found valuable in the later stages of the process leading to cirrhosis. Best and Taylor state that methionine prevents necrosis and cirrhosis. It supplies methyl groups for the formation of cystine which prevents necrosis, and itself supplies sulfur which is anti-necrotic, and by transmethylation forms choline which prevents cirrhosis. It is also largely responsible for the lipotropic effect of a high protein diet.

#### Inositol

The vitamin inositol, a member of the B group, whose formula is  $\text{CHOH} (\text{CHOH}.\text{CHOH})_2 \text{CHOH}$ , and which resembles a hexose, has definite lipotropic action but its mechanism is uncertain. As can be seen from the formula, it probably does not act as a transmethylator and is not known to be involved in the synthesis of any other factor, though it is known to act with choline in a synergistic manner. Handler in 1946 stated his belief that inositol either forms inositol phospholipids or acts as a phosphorylating catalyst. As will be indicated later, some workers think it may be an active factor in lipocaic.

#### Lipocaic

The considerable divergence of views which prevails in the field of lipotropics is greatest in the consideration of the anti-fatty liver factor of the pancreas. This controversy began when Dragstedt postulated a second internal secretion of the pancreas in addition to insulin which he called "lipocaic," a word derived from the Greek meaning literally "I burn fat." Dragstedt, Prohaska and Harms reported their findings in 1936. In one phase of their report they were concerned with the relation of pancreatic juice to fatty infiltration and degeneration of the liver in the depancreatized dog. In their first group of tests they effected a total loss of pancreatic juice through a pancreatic fistula. The dogs were fed a meat, bread and whole milk diet. Of four dogs, two developed subcutaneous abscesses and died in thirty days. Moderate fatty liver infiltration was noted at post mortem. Another died at

twenty-three days and had slight infiltration. The other dogs were sacrificed at twenty-six, thirty-five, thirty-nine and forty-three days postoperatively, and no excess liver fat was seen.

In their second set of experiments the pancreatic ducts were ligated and divided. (It was found that duct ligation caused acinous degeneration, so that there was no opportunity for pancreatic juice to be formed and absorbed directly into the blood stream.) The pancreas was separated from the duodenum. The animals died in less than eighty-three days from degeneration of the pancreas, but only two animals showed liver infiltration.

Further work with the depancreatized dog showed that 25 grams of raw pancreas per day was required to keep the liver normal. The amount of choline required to prevent hepatic infiltration was found to be 1.0 grams. This was calculated to be fifteen times as much as was present in 25 grams of raw pancreas. Beef brain, containing large amounts of lecithin and choline gave no protection against infiltration in one dog. In another dog beef liver was found to be ineffective. Dragstedt concluded from these findings that the absence of pancreatic juice is not the cause of the rise in liver lipids. He also asserted that the liver change noted in some animals after duct ligation was minimal. Sections of the liver tissue were reproduced to show the very extensive zonal infiltration occurring in some cases and the very slight collections of fat droplets in others. It was considered that the beneficial effect of raw pancreas is not due to contained enzymes or to improvement of digestion occasioned by those enzymes. Choline was not thought to be the factor responsible.

These investigations are perhaps open to certain critical analysis for the following reasons:

1. No mention was made of the considerable amounts of choline and methionine undoubtedly present in free or combined form in the meat diet used.
2. The duration of the test periods was not nearly sufficient in the light of later work.
3. The fact that many of the dogs died could not but have a vitiating effect on the value of the findings.

In their second 1936 report the results of observations on a pancreatic substance which permitted survival and prevented liver changes in

the pancreatectomized dog were given. Forty-five dogs received complete pancreatic excision. Eight dogs received no dietary supplement and died in two or three weeks. (All dogs in these experiments were fully maintained on insulin.) The livers were markedly fatty. Fractionations of the pancreas were undertaken in an attempt to secure the liver-protecting substance. Several different extracts from approximately 100 grams of pancreas were fed postoperatively to the dogs whose livers indicated fatty infiltration on biopsy. Three to four weeks later another biopsy was taken and the two specimens compared. The extracts used were as follows:

1. A fat-free alcohol extract.
2. An ether extract.
3. The pancreatic residue.
4. A salt solution extract of the pancreas residue.

The ether extract contained mainly the pancreatic lipids and had no protective effect. The fat-free alcoholic extract given in doses of 1.0 to 1.5 grams of dried substance was lipotropically active. The pancreatic residue and its saline extract were also effective. The substance, then, was considered insoluble in ether and soluble in alcohol and 5 per cent saline. It was not considered present in pancreatic juice. The general conclusion was, therefore, the discovery of a new pancreatic hormone which under normal conditions plays a role in fat transport.

In 1946 Dragstedt and his associates studied the effect of oral and parenteral lipocaic and oral inositol on the dietary fatty liver of the white rat. In this report it was admitted that the status of lipocaic as a true hormone is a matter of debate. It was felt, however, that lipocaic is a distinct substance apart from choline and its precursors.

In answer to the conclusions of McHenry and Gavin that the preparations of lipocaic they used contained enough inositol to account for lipotropic activity, Dragstedt stated that inositol was entirely ineffective in preventing or curing fatty livers in depancreatized dogs even in doses as large as the active preparations of lipocaic. As these pancreatic extracts could not be pure inositol, lipocaic activity could not be accounted for by the presence of inositol.

### Other Investigations on the Antifatty Liver Pancreas Factor

Entenman and Chaikoff and their associates presented reports beginning in 1941 on their work with the totally pancreatectomized dog. In 1941 they investigated the possibilities of choline as the factor in the pancreas producing lipotropic phenomena.

Their researches, in contrast to those in Dragstedt's laboratory, showed that duct ligation of the pancreas produces fatty livers in the dog and that with ligated ducts fresh pancreatic juice inhibits high liver lipid levels. They felt that this means that in the normal animal, pancreatic juice is responsible for the maintenance of a normal liver. As choline performs this function as well as pancreatic juice, perhaps it is the responsible pancreas constituent. They felt, however, that the question is still in doubt as to the real relation, if any, between choline effect and pancreas effect. They pointed out, as others have, that lipogenesis and lipotropism in the rat and dog liver are not necessarily identical processes.

Their experiment on choline and pancreatic extract was carried out on twenty-five dogs. Each dog received a lean meat and sucrose diet supplemented with vitamins for one to three weeks preoperatively. Postoperatively the sucrose diet level was raised and insulin was injected daily. The dogs were given raw pancreas in addition to the basal diet to keep the liver free from fat until they had recovered completely from the effects of surgery. When the dogs were adjudged fit insofar as appetite and the state of the operative wound were concerned, selective feedings with two pancreas fractions, "AR" and "KAR," and choline were begun. Livers were removed for analysis at intervals. Fraction AR was the pancreas residue after extracting with acetone and ether. It was stored at 18° C. until used. One gram was equivalent to 5.5 grams raw pancreas and was found effective lipotropically for as long as twenty weeks. The KAR fraction was a thoroughly autoclaved (20 pounds pressure for thirty minutes) amount of fraction AR. It was found lipotropically inactive in doses of 4 grams per day, indicating that the lipotropic substance is heat labile.

The *minimum effective dose of choline* (the amount required to keep the liver fat normal—approximately 2.6 per cent—4 per cent total fatty acids by weight—for fifteen to twenty-two weeks) was found to be 36 mg./Kg. A dosage of 15 mg./Kg. was not effective. As 250 gm. of raw pancreas contains 575 mg. of choline, choline was more than sufficient to account for the effectiveness of this amount of pancreas.

It was found that 250 grams of autoclaved pancreas gave full protection and also was curative. Therefore, choline may be a heat-stable factor. But 1 gram of AR gave full protection, and at most it contained 13 mg. of choline, an amount well below the minimum effective dose.

The destruction of the active principle in AR by heat suggests that the choline in AR was not involved in the lipotropic action.

But while these experiments showed that AR effect was not due to choline, it has not been ruled out that additional amounts of choline are made available to the organism by the presence of AR in the intestinal tract.

In 1944, further work on the pancreas factor was reported from the laboratory of Entenman and Chaikoff. As before, dogs were carefully chosen as to appetite; they were fed high protein diets with caloric and vitamin supplements preoperatively and raw pancreas for a varying number of weeks postoperatively. The regimen was kept up during the test period, the only variable being the test substance substituted for the raw pancreas. The test period was sixteen to twenty weeks. It was shown that a normal liver could be maintained on any one of the following constituents (not necessarily minimum doses):

1. 5 gm. raw pancreas.
2. 300 mg. choline chloride.
3. 500 c.c. pancreatic juice.

It was noted that the consistent development of fatty livers takes as long as twenty weeks. It was further shown that pancreas in the intact animal or pancreas feedings in the excised animal does not exert a storage effect.

Pancreatic juice fed to five dogs in the test period gave fatty acid levels of 3 to 7 per cent. It was concluded that the pancreas produces an external factor present in the juice. Lipocai was tested during the experimental period and blood

samples were checked for lipids and cholesterol at intervals. Their results showed:

1. The fraction AR (described above) gave liver lipid values of less than 4 per cent. Six dogs received lipocaic for ten to fourteen weeks; none had normal liver lipids, and three showed over 40 per cent. This lipocaic was derived from 15 grams of raw pancreas.

2. Lipocaic in amounts equivalent to 100 grams pancreas was administered for as long as twenty weeks. Only two dogs had a near normal fraction. Total liver fatty acids ran as high as 40 per cent.

**Blood lipids.**—Previous work had shown a fall in blood lipids when pancreas feedings were withheld in the excised dog. The lipids were normal with pancreas feedings. In the present experiment, blood lipids were checked before excision, during pancreas feeding and then up to twenty weeks during lipocaic feeding.

**Results.**—All dogs on raw pancreas maintained normal levels in blood lipids. There was a fall in all fractions, including cholesterol, during the test period on lipocaic. 5.5 gm. of pancreas were found sufficient to keep postoperative levels higher than preoperative levels.

**Their conclusion.**—Lipocaic is a poor source antifatty liver factor of the pancreas.

**The mechanism of action of the pancreas antifatty liver factor.**—Fatty livers develop even when diet is rich in choline or labile methyl groups, but is prevented by free choline or pancreas fractions. It has been shown that choline-free fractions of pancreas are effective lipotropically. With increased liver fat and when pancreatic juice is withheld, blood phospholipid values drop. It has been found that 95 per cent of plasma phospholipids are of the choline-containing type. This is strong evidence that circulating choline is deficient in the dog lacking intestinal pancreatic juice. After ligation or excision, plasma choline dropped from 61.3 to 46.6 mg./100 c.c. and remained below normal for as long as one year. One gram of fraction AR prevented such a fall, or raised the level to normal after it had fallen. It appeared from this work that the pancreas contains a substance highly active in choline metabolism.

**Discussion.**—Phospholipids apparently serve as choline transports as well as fat transports. As these phospholipids are practically all choline-containing, it might be concluded that they are connected with the physiological activity of circulating choline. The action of pancreas fractions in increasing the plasma choline is not dependent on choline as such in diet. The extra choline must come from tissues or synthesis.

When fatty livers occur, there must be an interference with the mechanism by which bound dietary choline and methionine are made available or in the synthesis of choline from methyl donors. Methionine was found lipotropically effective in depancreatized dogs in feedings up to twenty weeks. As methionine was shown previously to be a precursor of choline by virtue of its labile methyl groups in rats and dogs, no pancreas supplement was needed. Entenman and his associates concluded that the pancreas factor is not concerned with *in vivo* synthesis of choline or its lipotropic action. They thought that the pancreas factor might be responsible for freeing the bound methionine in protein in the diet. They therefore postulated the pancreas factor as a *proteolytic enzyme*.

#### General Conclusions in Regard to the Pancreas Lipotropic Factor as Compared to Choline

1. Most investigators are agreed that there is a specific substance manufactured in the pancreas which is not choline or one of its precursors, and which has a lipotropic action, direct or otherwise.

2. Lipocaic, as described by Dragstedt and as manufactured by commercial houses, does not give the same results in the hands of different investigators. It might be legitimately concluded that the name *lipocaic* does not at present represent a thoroughly standardized pancreatic extract in terms of potency and lipotropic effect. It can also be stated that there is, as yet, no conclusive proof that lipocaic represents a true hormone. While the experiments of Dragstedt seemed to show that pancreatic juice was not active lipotropically, other investigators found pancreatic juice very effective in preventing fatty livers in dogs. The evidence to date would indicate that the term *lipocaic*, as connoting an internal secretion in the pancreas which is active lipotropically, is not valid. However, there seems no doubt that the pancreas does contain a factor active in clearing fat from the liver which is neither



a member of the choline group nor inositol. Whether it acts directly on the liver fat, as does choline, remains a question. Present evidence points to an indirect action. It may act by releasing choline, or one of its precursors, from a bound form to a form freely available for direct lipotropic activity. At the present date it appears that choline is the only factor that lowers liver lipids by direct combination with the liver-fatty acids to form phospholipids.

#### Experimental and Therapeutic Findings in Regard to Choline and Chronic Pathological Processes in the Liver in the Laboratory Animal and in Man

As choline and methionine have been used in several clinics for the treatment of acute and chronic affections of the liver in man, it is of value to ascertain the relationship of the lipotropic factors to the pathological process. Copeland and Salmon in 1946 presented evidence that choline deficiency in the rat may produce the steps leading to cirrhosis and even neoplastic change.

Eighty-eight rats were given a low choline diet consisting of peanut meal, casein, sucrose, lard and salt, with added vitamin supplement (which included inositol). Nineteen animals received choline throughout the test period, and served as controls. It was found that a complete lack of free choline resulted in the death of the rats before advanced liver change could be noted, so the test animals were given minimal amounts of choline at intervals merely to keep them alive. Twenty per cent died in six weeks. The remainder were kept alive for several months, though they showed gradual general degeneration.

At the end of twenty-eight days, biopsies showed swollen heavy livers; fatty acids and neutral fats were demonstrated in globules. At three months there was fatty infiltration zonally and degeneration—a "pre-cirrhotic state." This was judged by the increase in fibrous tissue and a rapid rate of cell destruction and regeneration. At eight months a "hobnailed" liver was produced—a typical cirrhotic picture. There was perilobular fibrosis, and intralobular strands of connective tissue were seen. Numerous mitotic figures and giant cells were observed. Cells were occasionally arranged in sheets, whorls and acini-like formations. In 30 per cent of the rats surviving eight months there were areas resembling adenocarcinoma—cords of cells, solid masses and acini-

like whorls. This growth was made up of stratified epithelium. The controls did not show any neoplastic tendency. These authors concluded that a definite sequence of events, from fatty infiltration through established cirrhosis, occurred in the rat in choline deficiency.

On the subject of *lipotropic agents and chemical poisons* in the liver, most workers are now agreed that choline does not prevent fatty infiltration in  $\text{CHCl}_3$ ,  $\text{CCl}_4$ , phosphorus and other poisoning, but does hasten recovery by removing fat.

Therapeutic trials of the lipotropic agents in *infectious hepatitis and chronic liver disease*, including the enlarged fatty liver with early fibrosis and the shrunken liver of atrophic cirrhosis, have so far been equivocal.

Paul, Daum and Kemp in 1947 used choline in several cases in which they felt there was a disorder in fat metabolism. They felt that malnutrition is a major factor in cirrhosis. In a normal diet, sufficient lipotropic factors are supplied to convert ingested fat to phospholipid. Due to dietary imbalance (high fat, low protein, low carbohydrate and low vitamin) in *alcoholism*, a fatty liver is initiated, and irreversible changes may follow. By reversing these factors and adding choline, they felt that fat would be mobilized and appetite would improve. In *diabetes mellitus* they considered that normal utilization of endogenous insulin is dependent on normal liver function. When this function fails, extra insulin, even exogenous, is required. Liver dysfunction and damage is known to occur in a high percentage of diabetics, particularly in acidosis and coma. Hyperglycemia and glycosuria can result from obesity alone. They have found benefit from choline in diabetic liver damages, psoriasis, burns and the hepato-renal syndrome.

In their therapeutic trials, Paul and his group used choline dihydrogen citrate, 25 per cent in a syrup vehicle, which they found the most palatable of the choline salts. The standard amount of choline used was 3 grams per day, given in divided doses three times per day. Their nondiabetics received a low-fat, high-protein diet while the diabetics received a routine diabetic diet. The trials were first run on normals. The average normal values without choline for the blood lipid fractions were as follows:

Total fats .....	500-700 mg. per cent
Phospholipids .....	195-255 mg. per cent
Cholesterol .....	150-200 mg. per cent
Cholesterol esters .....	60- 70 mg. per cent

In these controls there was wide variation from one individual to the other, but each individual tended to maintain a fairly constant lipid fraction *ratio* when choline was given to these controls for twenty days. Each fraction tended to be stabilized nearer the average normal. Phospholipids showed the least change but tended to go higher when *seventeen cirrhotic* persons were checked for fifteen days on choline. There was no uniform change, but there appeared to be a tendency for one or more of the values to approach normality. There seemed an over-all improvement in the blood lipid picture which previously had shown low values. In *diabetes mellitus* two groups of five each were treated, one with choline, the other without. The choline-treated patients showed a definite trend toward normal values. For a larger series of twenty patients in the control group and twenty in the "choline group," twelve controls had a normal total fat reading while eight had an abnormal reading. In the choline-treated group, seventeen showed normal readings while three had abnormal total blood lipids.

Clinically, there was an undeniable improvement in general well-being, particularly where abnormal fat metabolism was recognized before treatment. There was thus a correlation between the laboratory findings and the clinical response as measured by appetite, feeling of well-being and vigor. When choline was withdrawn, patients reported feeling less well in three weeks.

#### General Conclusions Regarding Lipotropics and Liver Pathology

1. From the experimental evidence reviewed, it seems reasonable to conclude that cirrhosis or irreversible fibrosis of the liver is an end result of a process initiated by fatty infiltration. One laboratory has shown that neoplastic change may occur with or following fibrotic change, and implicates choline deficiency as a possible carcinogenic factor. This postulation requires considerably more investigation, however, before any definite relationship can be established.

2. This fatty infiltration seems due to a negative rather than a positive factor. The bulk of the above evidence indicates that this negative factor is a lack in the diet, or in the organism, of substances which directly or indirectly have a lipotropic influence; and in most instances, addition to the ingested diet of these substances effects

a reversal of the infiltrative process in the liver, with a consequent rise of the lipid fractions in the blood.

3. The most consistently reliable of these factors has been shown to be choline, which exerts a lipotropic effect in rat, dog and man. The pancreatic factor is also effective, though to probably a lesser degree. As pointed out above, however, it may act only indirectly by effecting in some way an improvement in choline metabolism. At present, choline seems the only compound which acts by direct molecular combination with the liver fatty acids and neutral fats.

4. Considerably more experimental and therapeutic trials are required before choline and similar agents can be adopted as definitive therapy. While it seems true experimentally that choline exerts a beneficial effect by clearing the fat from the liver, therapeutic trials have not always yielded unequivocal results. The possibility of toxic effects must be taken into consideration. Particularly, the possibility of circulating acetylcholine appears of definite importance.

5. Future experimental work should be directed toward the use of the lipotropic factors as prophylactic agents rather than curative drugs. The prevention and removal of excess liver lipids in the early and acute stage of liver disease should theoretically be possible with choline. But there is no evidence that the lipotropic agents should have any beneficial effect on the established fibrotic state, except where fatty infiltration is still a part of the pathological picture.

#### Summary

1. The term *lipotropic* was defined, and the substances which appear to produce a lipotropic effect were briefly described as to their experimental effects and relation to chronic liver disease.

2. The members of the choline group, choline betaine and methionine, were compared and experimental evidence regarding their effects was reviewed.

3. The evidence relating to inositol was presented.

4. The laboratory results on lipocaic and the antifatty-liver factor in the pancreas were reviewed and compared. The nature of the pancreas lipotropic factor was discussed.

5. The findings in experimental and therapeutic

tic tests of the lipotropic agents in relation to liver pathology were presented. The significance and limitations of choline and related compounds in liver disease were pointed out.

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## THE TREATMENT OF OPEN WOUNDS OF THE HAND

(Continued from Page 1192)

for suturing of the digital nerves. There seems to be the impression that these nerves will regenerate spontaneously and that repair is not necessary. There is also the impression that the nerves are too small to suture. Both of these impressions are wrong. While it is true that overlap will compensate to varying degrees for loss of innervation on one side of a finger if the other side is intact, this overlap is never as good as the normal and may be a real handicap. If both digital nerves have been divided, the sensation has no chance of returning to the finger. In answer to the statement that the digital nerves are too small to suture is the experience of many surgeons in suturing them. They are not nearly as small as one thinks, and three or four fine sutures can easily be distributed about their circumference.

Fractures and dislocations should be reduced at the primary operation if the wound is such as to permit closure. Reduction should also be done even in older wounds unless there is a severe

spreading infection already present which precludes any manipulation. Joint capsules should be sutured in any wound in which operative intervention of any sort may be undertaken, even if the wound cannot be closed afterwards. Internal fixation of bones may be undertaken if the wound is seen early. Ordinarily, most fractures of the hand can be reduced and held in reduction by molding the hand into the position of function or into the grasping position. In very few instances it is necessary to apply traction to the fingers to maintain reduction. In Bennet's fracture it is often advantageous to apply traction because of the shearing nature of the injury and the difficulty of holding the first metacarpal in position against the pull of the powerful flexors and extensors of the thumb. We have, however, in a number of instances been able to reduce and maintain reduction of the base of the first metacarpal on the universal hand splint which simply holds the hand in the position of function.

(To be concluded in December issue.)

## UNRECOGNIZED FRACTURES IN HIGH SCHOOL ATHLETES

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AT the close of our 1945 football season the coach of our championship team had three of his players report with minor injuries of considerable duration. He referred them to our medical department where x-rays were taken which showed that each of them had a fracture that had been incurred earlier in the season. This surprised us considerably because this particular coach, in addition to being very well trained, had always been unusually prompt and efficient in taking care of his injuries. Apparently all these injuries had been considered so insignificant that the boys had not reported them to the coach or had deliberately concealed them. These three cases led us to make a study of our unrecognized fractures. By this we mean those fractures where the athlete continued to compete, without medical advice and in spite of his injury, until we later determined that he had a fracture. All of these cases followed about the same pattern. The boy had not thought his injury to be of any importance and had not notified his parents or reported to the family doctor for medical care. Instead, he had continued to compete until the coach sent him in to have the extent of his injury determined before using him further in competition.

Our study has been complicated by many factors. The parents often oppose the boy's playing football, and he consequently conceals his injury or explains it, if he has to, as a strain. Coaches are often so absorbed in coaching that they dispose of their injuries by telling the boy to "go see the doc" and then forget all about it. Coaches often bear down on the boys so hard that they will undergo all sorts of torture with injuries rather than be called a sissy, or yellow, or otherwise have their courage ill spoken of. Boys are often afraid that their teammates and friends will think they haven't any "guts," and so they take a Spartan attitude toward their injuries. As a result it is almost impossible to get boys to use a crutch or a sling or carry other visible signs of injury, except when the injury is a major one and some sort of protection allows no

choice in the matter. If some of his teammates are present, the boy will usually submit without complaint to the manipulation of an injured part and will allow a fracture to be reduced without anesthesia.

After seeing the three cases mentioned above, we searched our records and found many similar ones. With some reluctance and intrepidation we began to x-ray all our strains. We soon found that one out of every four or five strains was, in reality, a fracture. We now have become so suspicious of strains that we have to be shown that one is a strain by proving by x-ray that it is not a fracture.

It might be well at this point to make it clear that we are interested in these cases primarily from an athletic point of view. We are not trying to provide medical or surgical care. If there is a chance that athletics under any condition will do harm to a boy, we wish to cut that chance to a minimum if not to zero. There are, of course, certain hazards inherent in athletics, but beyond them we wish every extra hazard eliminated. We must know at the earliest possible moment if a boy is unable to play. We prefer not to use any haphazard method in finding this out. It is our mission and duty to train youth properly. We wish to do this with the least chance of harm to the youth. With this in mind, it then becomes our duty to disqualify our unfit at the earliest possible moment. It is not enough to bar the weaklings and handicapped by a preseason athletic examination. Each boy who suffers an injury should be appraised physically as soon as possible to determine if further competition is permissible. Much harm may be done by leaving the matter to the family or even to the family doctor. Often the family is reluctant to incur medical bills and tends to muddle along if the injury is not extremely severe.\* If the boy is seen by a doctor, parents often complicate things by demanding that the

\*This muddling along may involve paying no attention whatever to the injury. It may take the turn of ill-timed advice, such as going ahead and "work it out." It may result in the boy's getting into the hands of an amateur self-appointed "bone setter." It often results in a lot of heat being put on the coach, by well-meaning friends and relatives, to use the boy in spite of his injury. These are only a few of the things that can happen.

Dr. Foster is Medical Director and John C. Wells is Assistant Director in charge of interschool athletics in the Minneapolis Public Schools.





Fig. 1. X-ray in Case 1 showing a transverse fracture at the distal end of the fifth right metacarpal.



Fig. 2. X-ray in Case 2 showing an oblique fracture of the fourth metacarpal bone.

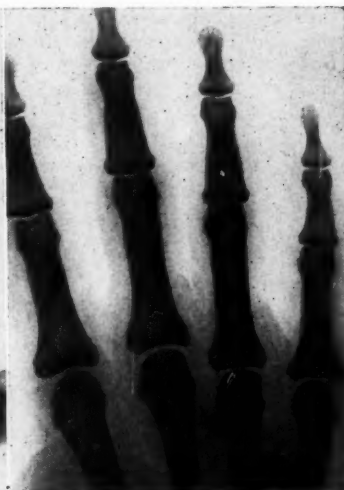


Fig. 3. X-ray in Case 3 showing an oblique fracture of the fifth metacarpal bone.

school pay the bill. Our city attorney has held that we cannot legally do this. The doctor then cannot be expected to co-operate wholeheartedly in a deal where he stands a major chance of being euchered out of his fee—certainly not when you consider that every fracture is a possible lawsuit. Often the family doctor does not have an x-ray, and even if he does he is likely to appraise the injury from a medical or surgical standpoint rather than from an athletic standpoint. The injury may be of minor importance medically or surgically and yet be of major magnitude from a competitive view. Many doctors prefer not to treat these cases because in one way or another they crowd the remainder of their practice all out of proportion to their medical or surgical importance. It is often hard enough for us to handle these cases when we hold all the factors in our own hands. To allow any slack to slip into the situation is to be unfair to both the student and to his coach. The boy should be allowed to play if he is able, and forbidden to play if he is not able. The coach should be given this information at the earliest possible moment. In carrying out our policy, we have no desire to invade the field of medicine beyond the bounds of urgent athletic necessity. If a boy has a serious injury, such as a broken arm or leg, our coaches bar him on the spot. We have a doctor in attendance at each game to advise the coach and give first aid. If the injury is of a less evident nature, and the

matter has not been attended to by the family or the family doctor so that the coach knows where he stands, then he appeals to our medical department for a verdict. This procedure led us to x-ray many insignificant injuries in order to give an exact and just answer. In doing this we have come to the conclusion that every moderately severe strain of a foot, ankle, lower leg, finger, hand, wrist or forearm may be, and often is, a fracture.

We present the following case histories.

### Case Reports

*Case 1.*—R. A. of P. H. High School was sent to us on November 5 at the close of the football season and at the opening of the basketball season. His coach requested that we look at his right hand. He stated that he had hurt it early in September and had had trouble with it all season, not enough however to have it looked at by a doctor. An x-ray revealed a transverse fracture of the distal end of the fifth right metacarpal bone.

*Case 2.*—N. S. of P. H. High School was sent in by the same coach along with Case 1 to have his right hand looked at. He gave a history of having hurt his right hand in September, or early in the football season, at about the same time his teammate above was injured. Like his teammate he had played football all season and had not sought medical advice or care previous to this time. An x-ray revealed an oblique fracture of the fourth metacarpal bone extending the full length of the bone.

# UNRECOGNIZED FRACTURES IN HIGH SCHOOL ATHLETES—FOSTER AND WELLS

*Case 3.*—B. H. of P. H. High School, was sent in with Case 1 and Case 2 with a history practically identical with theirs. He had hurt his left hand early in the season. An x-ray of the left little finger showed

*Case 9.*—R. K. of S. High School was sent in by his coach to see why he could not hold a football while playing at the quarterback position. He gave a history of having hurt his left hand in a game on October 9.

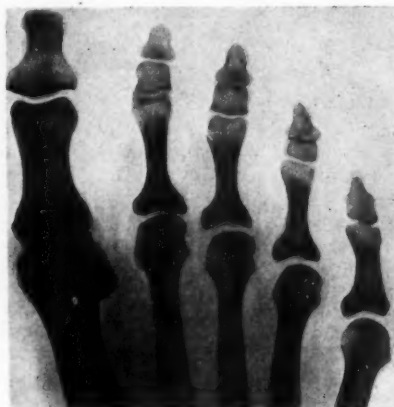


Fig. 4. X-ray in Case 4 showing an oblique fracture of the proximal phalanx of the left middle toe.

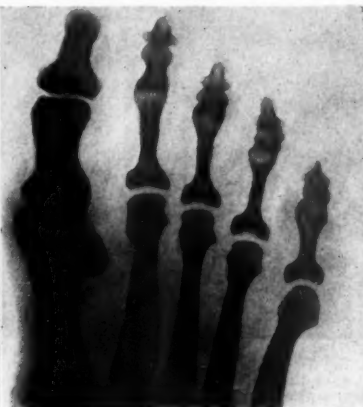


Fig. 5. X-ray in Case 5 showing an oblique fracture of the proximal phalanx of the left little toe.

an oblique fracture of the proximal phalanx extending through nearly the entire length of the bone. He, like the other two boys, had continued to play out the season when he could get into the game.

*Case 4.*—A. P. of R. High School was sent in by his coach with a history of having hurt his left foot two weeks earlier while doing a giant roll on the parallel bars. He had sought no medical advice previous to the time we saw him. An x-ray showed an oblique fracture of the proximal phalanx of the left middle toe.

*Case 5.*—A. H. of E. High School was sent in by his coach two weeks after injury. He had received no medical care before coming in. An x-ray showed an oblique fracture of the proximal phalanx of the left little toe.

*Case 6.*—A student in R. High School was sent in two weeks after injury. He had sought no medical advice. An x-ray showed a greenstick fracture of the fourth right metatarsal bone.

*Case 7.*—G. C. of W. High School was sent in by his coach for an injury sustained four days earlier while boxing. He had had no medical care before coming in. An x-ray showed an impacted fracture of the proximal end of the left first metacarpal bone.

*Case 8.*—A student of S. High School was sent in a week after injury complaining of a strained thumb. An x-ray showed a transverse impacted fracture of the right thumb.

He came to us on October 19, having had no previous medical care. An x-ray revealed an oblique fracture of both the fourth and fifth left metacarpal bones.

*Case 10.*—S. C. of P. H. High School was sent in by his coach on October 21 with a history of injury to his right hand five days earlier in a regularly scheduled football game. An x-ray showed an impacted fracture of the proximal end of the first phalanx of the right hand. He had had no previous medical care.

*Case 11.*—J. K. of N. High School was sent in by his coach for a strained ankle. An x-ray revealed a previous fracture of the medial malleolus of the left tibia of two years' standing, with very poor or no union at all. He had not revealed this condition to us and had played until an injury occurred which the coach was now checking up on.

*Case 12.*—Z. S. of N. High School was sent in by his coach for a Charley horse sustained three days earlier. He gave a history of having been kneed in a football game. He had had no previous medical care. An x-ray showed an oblique fracture of the left fibula, at the junction of the upper and middle thirds.

*Case 13.*—W. J. of P. H. High School was sent in by his coach complaining of a pulled muscle in his left lower leg. He came in on September 18 and dated his injury as of September 6, twelve days earlier. An x-ray revealed a transverse fracture of the left fibula at the junction of the upper and middle thirds. This boy had been raring to get into the game every time the coach would use him.



Fig. 6. X-ray in Case 9 showing oblique fractures of the fourth and fifth left metacarpal bones.



Fig. 7. X-ray in Case 11 showing a fracture of the malleolus of the left tibia of two years' standing.



Fig. 8. X-ray in Case 13 showing a transverse fracture of the left humerus.

**Case 14.**—K.R., a supervisor of Minneapolis Public Play Grounds. We present this case not because it is a high school athletic injury, or because we wish to escape the unlucky number 13. We present it because it shows what an athletic coach may run into in handling these cases. It shows that the wisest of us slip up now and then. We did not dig this case out of our files. He came in while we were working up this article, and we decided to present his case with the others.

This man has been engaged in athletics and athletic activity as a life work. He graduated from the Springfield Training School of Springfield, Massachusetts, and immediately entered playground work where he spent forty years. He has spent his whole life in contact with boys at the High School level.

During the first snowstorm of the winter his car got stuck, and a small tractor was called out to pull him back on the road. He stated that he got too close to the tractor and it nudged his left lower leg and foot. He was not clear just how it happened, but he sustained a strained left ankle. Over a month later his ankle continued to swell. He came in to see why he was so slow in recovering. An x-ray showed a fracture of both the tibia and the fibula at the ankle joint, each distal fragment being from  $\frac{1}{2}$  to 1 centimeter in size. He had had no medical advice or care before coming to us.

We have seen many more of these cases, but presenting them would only be a repetition of those here shown. We have not included any cases where a fracture was expected before an X-ray was taken. We have tried in all cases to make a diagnosis before x-ray was used, but found no way of being even nearly certain. Many

cases where symptoms almost certainly indicated that a fracture was present were found on x-ray to be only severe strains. On the other hand, the symptoms in many cases were so mild that a fracture was considered almost certainly not present, but was found on x-ray. We were not able to differentiate between a strain and a fracture except by x-ray. Histories in these cases were usually useless, especially in football where the pitch of excitement is so high that the boy is not able to tell how and when he got hurt.

### Conclusions

1. Every strain is a possible fracture.
2. A definite diagnosis can be made only by x-ray.
3. Many fractures sustained in athletics are never diagnosed.
4. Football is the outstanding producer of fractures in high school sports.
5. Most unrecognized fractures in high school athletes occur in the hands, wrists, forearms, feet, ankles, and lower legs.
6. It is the duty of the athletic department in high schools to make an all-out effort to keep boys with recent fractures out of competition until the fracture is well healed.

### Discussion

JOHN C. WELLS, assistant director in charge of inter-school athletics, Minneapolis Public Schools, Minneapolis

## UNRECOGNIZED FRACTURES IN HIGH SCHOOL ATHLETES—FOSTER AND WELLS

olis: The Minneapolis public school athletic program involves competition in twelve sports by several thousand boys. We try in every way possible to give thorough medical examination, competent coaching, standard equipment, adequate supervision, good officiating and proper care of injuries as they occur. In spite of many precautions, our experience shows that many so-called unimportant bumps and bruises have turned out to be fractures, and we have labeled these "unrecognized fractures."

Our athletic injury problem must of necessity be a large one in Minneapolis. We have eleven senior high schools which compete more or less in a round robin in twelve different sports. We have examined 2,382 boys for athletic competition in the fall quarter of the present year. Our top school had 512 boys certified for athletics in the last three months of 1947. About half of these boys sustain some bumps, bruises or strains of varying degrees of severity. Most of the serious injuries are taken care of by the family doctor. Many are seen by the team or game physician. Some are sent by the coach to our medical officer. Many are taken care of by the coach or team trainer. It is probable, we are sorry to say, that some are not attended to by anyone.

We believe that no athlete should be permitted to participate in athletics unless he is registered in the Minnesota State High School League Accident Benefit Plan. This insures a medical examination and some coverage for medical expenses in case of injury. Many times injuries are belittled because of possible expenses involved in medical examination and treatment. If boys are registered under the plan, there is little excuse for neglecting these injuries, as a liberal allowance is provided for sprains and x-ray.

Dr. W. K. Foster, our athletic medical adviser, has made a report of these injuries, and it is our hope that others who deal with athletic injuries may profit from our experience.

FRANK CLEVE, coach at Patrick Henry High School, Minneapolis: Most coaches of high school teams have a general idea of injuries. Those that have majors in physical education also have studied the anatomy and physiology of the human body.

I believe that the majority of coaches will not play nor contact-scrimmage a boy who is injured to the extent where it may be more injurious to this boy. However, many injuries are not serious enough to keep a boy from playing. Many boys are slightly injured and do not report this to the coach or manager. Also, many minor ailments are not thought serious enough to keep a boy out of practice. I am thinking of normal bumps and bruises, also slight strains and sprains.

The equipment and care of injuries in most high schools is very limited and inadequate, and most minor ailments are treated at home. Sometimes these treatments do not show proper improvement, but the boy does not complain or report any pain to the coach.

After a reasonable length of time, the injury may not heal properly and the boy may casually mention it to the coach, if he has not known about it before. Coaches then send the boy for medical treatment and x-ray.

Some of these cases prove to be fractures rather than sprains.

Before each season a medical examination by a doctor is required. Why not the same after a football season? My face was very red when I sent three boys to be examined with finger injuries and all three proved to be fractures.

### Conclusions

1. Treat all injuries as serious, until proven otherwise.
2. Recheck injuries and, where proper improvement is not shown, provide medical treatment and x-ray if necessary.
3. Provide a physical examination at the end of football season by a physician.

DR. WILLIAM E. PROFFITT, formerly of the University of Minnesota football, basketball and boxing teams: I am very glad that Dr. Foster and Mr. Wells have invited me to discuss this subject. It represents a field of special interest to me, in that it ties together my previous athletic career and my present one in medicine and its application to the High School Athletic Program.

I feel very strongly about the points brought forth in the discussion because these boys in high school athletics have, in reality, the greater portion, not only of their life, but also of their athletic career, ahead of them. Also any injury they receive may be permanently hindering to their earning power in later years. I cannot see how anyone dealing with the health and safety of these young athletes can ignore "a sprain or strain" without an x-ray. I, for one, cannot see through the skin, muscles, et cetera as well as the x-ray can, and so I let the x-ray make my decision for me in all cases where an injury is incurred.

The present system of insurance as carried by the Minnesota State High School League, and very ably administered by Mr. Harold Peterson, is an excellent one. It protects the boy, the school, the system, and the doctor. Certainly there are some defects which, in time, can be remedied: The present red tape puts the burden of proof of injury, seeing that proper forms are obtained, filled out, and returned to the school involved, and the burden of treatment, all upon the doctor—all this within a short span of time. How much simpler and more to the point it would be to have the doctor have the necessary insurance blanks in his office, fill them out on the day of treatment, and send them in immediately to the State High School League, and have disposition made. Or the boy injured could bring the blanks with him on the first visit. I know that there would be much less confusion if this were done.

From my connections with athletics as a player and now as a doctor, I certainly thoroughly agree that even apparently minor injuries can be serious enough to need treatment, and that many fractures are undiagnosed. I am sure that Dr. Foster and Mr. Wells will be successful in their crusade to improve the quality of medical service given to these boys in high school athletics and still get them well rapidly enough not to lose too much time from their competition. This is, and I mean it, all-important to the participating athlete.



## TRACHEOTOMY: INDICATIONS AND TECHNIQUE

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### Indications

**T**RACHEOTOMY is indicated whenever one can be sure that the laryngeal airway is markedly obstructed and will not be reopened spontaneously if the disease is allowed to take its course (e.g., injuries and inflammation of larynx).

Tracheotomy is sometimes indicated in the absence of laryngeal obstruction when it is necessary to remove foreign material from the trachea or bronchi (e.g., vegetable foreign bodies, food and pharyngeal secretions in certain cases of bulbar poliomyelitis).

Good surgical judgment is necessary to decide whether tracheotomy needs to be done. In croup, the decision is difficult. In the cases seen early in one's experience, one is likely to be hasty about doing tracheotomy. The parents want the child treated in the safest manner, and one sometimes is hard put to know whether to operate or not.

If a child's color is reasonably good, although signs of narrowing of the laryngeal airway are present, the most important single index of danger is an increasing pulse rate. The pulse should be recorded frequently (every ten to thirty minutes). If the rate consistently rises, an impending circulatory failure is presaged, and tracheotomy should not be delayed.

The following complete list of indications is given by Thomson and Negus:

1. Injuries to the larynx—wounds and fractures of the laryngeal cartilages.
2. The extraction of foreign bodies when these are impacted in the larynx, or cannot be removed from the trachea or bronchi by the endolaryngeal route. The indication applies almost entirely to vegetable foreign bodies, which are liable to produce edematous swelling around the glottis.
3. Stenosis of the larynx or trachea,
  - (a) External compression: goiter, aneurysm, mediastinal growths.
  - (b) Internal constriction: inflammatory swelling, tuberculosis, syphilis, diphtheria, scleroma, neoplasms (carcinoma, papiloma, etc.).

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This paper was presented as a graduate course at the American Academy of Ophthalmology and Otolaryngology, Chicago, Illinois, October, 1947.

- (c) Cicatricial narrowing, after healing of ulcers (syphilitic, typhoid, etc.) or operative measures.
- (d) Congenital webs in the larynx.
- (e) Double abductor paralysis.

4. (a) As a preliminary procedure to operations on the upper air passages, so as to prevent (by a tampon cannula or by plugging the larynx) the descent of blood into the bronchi. (b) Following these operations, to supply air to the patient.

5. In asphyxia, to allow artificial respiration.

### Indications in Bulbar Poliomyelitis

In addition to the indications given by Thomson and Negus, as listed above, I wish to add those which resulted from our experiences in treating bulbar poliomyelitis patients during the Minneapolis epidemic of 1946. It was the opinion of the group involved that certain indications for tracheotomy exist in bulbar poliomyelitis patients. They may be summarized as follows:

In any patient whose bulbar symptoms are early and whose disease is progressing rapidly or who has evidence of involvement of the circulatory or respiratory centers or who has severe toxicity or mental changes, tracheotomy is indicated. In the patient whose bulbar poliomyelitis was severe enough so that the pharyngeal paralysis permitted spillage of secretion into the larynx and trachea, we advised tracheotomy only when the patient could not clear his own airway or when his airway could not be cleared for him by pharyngeal aspiration and postural drainage.

Inability of the patient to clear his own airway was indicated by recurrent cyanosis, coarse bubbling rales in the chest, laryngeal stridor and inability to cough efficiently. These symptoms are most important in excited patients who are unmanageable and in stuporous patients who are oblivious to the secretion running into their respiratory tree. Direct laryngoscopy may demonstrate pooling of mucus in the pharynx, paralysis of one or both cords, and diminished tactile sensitivity of the laryngeal mucosa.

The use of the respirator in bulbar poliomyelitis patients constitutes a further indication for tracheotomy. It has been the opinion of various authorities that the respirator is contra-indicated in bulbar poliomyelitis because the machine may

suck pharyngeal secretion down into the lower respiratory tract. Tracheotomy was used in several of our cases to permit aspiration of this material from the trachea and bronchi.

### Types of Tracheotomy

**Emergency.**—Two emergency operations will be described. Both open the airway. One is actually a form of laryngotomy, and the other is a true tracheotomy.

1. *Laryngotomy, Intercricothyrotomy.*—*This operation has been condemned and with justification.* On the other hand, it may be life saving and there are certainly times when it is necessary. Its limitations must be understood.

A temporary opening into the airway is made by making a transverse incision through the cricothyroid membrane across the midline. The opening is maintained by improvised retractors (hairpins, etc.) only until a real tracheotomy can be done. Then the cricothyroid incision can be allowed to close.

*Continued use of this opening into the airway is wrong.* The cannula will cause atrophy of the cricoid cartilage and make decannulation difficult by allowing the airway to collapse and by formation of scars within the larynx due to trauma.

2. *Emergency Tracheotomy.*—This procedure has been described so well by Dr. Chevalier Jackson that his description is quoted here:

Step 1. Throwing the trachea into prominence and fixing it in the midline are accomplished by pushing back the great vessels well under the sternomastoid muscles. This is done in a second or two with the thumb and index finger of the left hand.

Step 2. Initial Incision.—With one sweep of the scalpel an incision is made from Adams apple almost to the suprasternal notch. This incision must go clear through the skin to facilitate free finger dissection. There may be considerable flow of blood but nothing immediately dangerous.

Step 3. Finger Dissection to Find the Trachea.—While the left thumb and middle finger are still holding back the great vessels under the sternomastoids the previously idle left index finger quickly locates the trachea by following downward from Adam's apple. The trachea is infallibly identified by the rigid character of its walls; there is nothing like it in that region. Every medical student has learned, or should have learned, the feel of it in the dissecting room. In identifying the trachea the finger at the same time bares its midline of tissue below the cricoid, by pushing the finger down under any overlying tissue; if the isthmus of the thyroid gland intervenes it is pushed downward and elevated. If it is torn or cut it will not matter. If an anomalous artery is felt crossing the trachea at this point it is pushed downward.

Step 4. Tracheal Incision.—The trachea having been identified and bared of tissue, the tip of the index

finger is slid slightly to the operator's left side so that the scalpel in the right hand can be safely guided down along the palmar surface of the index finger onto the tracheal wall. Two or three rings are incised. In making the incision the middle finger of the right hand makes a guard against deep entrance of the knife that might otherwise go through the posterior tracheal wall into the esophagus.

Step 5. Holding Apart the Lips of the Tracheal Incision.—There is usually a hiss if the patient is breathing, but the lips of the tracheal incision in most cases lie so closely in contact that insufficient air is permitted to pass. The lips should be spread apart with a Trousseau dilator; if none is available a hemostat will do. Lacking these, the handle of the scalpel may be inserted in the slit and rotated slightly to cause gaping. Of course some blood will trickle into the trachea but cough will quickly expel it and spray it about. The cannula is inserted with its pilot; the pilot is removed if not blown out by the tussive blast. If by reason of deplorable lack of equipment no cannula is available someone must hold the lip of the tracheal incision apart until a cannula can be obtained or a makeshift devised for temporary use.

Step 6. Artificial respiration must be done if there has been respiratory arrest. Oxygen mixed with 7 per cent carbon dioxide should be liberated at the tracheal opening or gently insufflated through a catheter. The best cardiac stimulant is to get oxygen into the heart muscle by way of the circulating blood. No drug is a substitute for this.

Step 7. Hemostasis.—As soon as respiration is established hemostasis may be done in the usual way. If artificial respiration is necessary, temporary hemostasis may be afforded by packing gauze firmly into the wound and around the cannula.

**Orderly or Tranquil Tracheotomy.**—Conditions for orderly tracheotomy can be created by inserting a bronchoscope, Mosher life-saving tube, or endotracheal anesthesia tube through the stenotic larynx to provide a temporary airway. This airway is maintained by an assistant during the time tracheotomy is being carried out.

**Technique.**—Anesthesia for tracheotomy should almost always be local. In the hands of the occasional surgeon the rule should be that anesthesia ought always to be local. In rare instances where the tracheotomy is purely elective and when intratracheal anesthesia is available, general anesthesia may be properly considered.

At the University of Minnesota, our usual anesthetic is 1 per cent procaine with epinephrine infiltrated in the midline from the suprasternal notch to the thyroid notch. A rhomboid of injected anesthesia can be made to surround the field with no solution being injected in the midline. We have not used this method.

A midline incision is made from the thyroid notch above to the suprasternal notch below. The knife is carried through the skin and superficial fascia. Bleeding vessels are clamped. Tying may be deferred until just prior to opening the trachea.

Often cocaine is injected into the tracheal lumen just before the tracheal wall is incised. The few moments necessary to allow it to produce anesthesia may be used to tie any skin bleeders still in need of ligature.

The midline incision is carried through the deep fascia. If the thyroid isthmus is broad and lies over the trachea where the tube is to be inserted, the isthmus should be divided and retracted to the sides. The division is carried out by dissecting the thyroid isthmus off the front of the trachea, clamping it and cutting between clamps. A running suture of fine plain catgut or silk is placed in each cut edge of the thyroid to control bleeding before the clamps are removed. Any large veins which interfere with proper placement of the tube are ligated and divided.

Some authors (Waldapfel) advocate a transverse incision of the fascia above the thyroid isthmus to free the isthmus, which may then be retracted downward and the tube properly placed without incision of the isthmus. No harm is done by division of the thyroid isthmus and the essential object is proper placement of the tracheotomy tube. At the University of Minnesota, we have practiced division of the thyroid isthmus whenever necessary.

After division of the thyroid isthmus, the tracheal rings can be seen through the thin fascia overlying them. The operator should reorient himself at this time. He should palpate the cricoid cartilage in the midline anteriorly and should count down to the third tracheal ring. *If there is any doubt in the operator's mind as to exactly where he should incise the trachea, he should take time to find out before he opens the trachea.* There is no more miserable or difficult problem than that of difficult decannulation, and this problem can only be avoided if the incision in the trachea is properly placed.

One or two cubic centimeters of 2 to 4 per cent cocaine solution are injected into the lumen of the trachea a few minutes before the incision into the tracheal wall is made. This makes the actual opening of the trachea quite a tranquil procedure, with little coughing and struggling on the part of the patient.

It has been our practice at the University of Minnesota to perform the punch operation of Mosher. A midline incision is made through the second, third or fourth rings, depending upon

the accessibility of the trachea. An Allis forceps is then used to seize the tracheal cartilage through the incision, and a semilunar piece is removed from the anterior tracheal wall on the right and left sides of the incision. Mosher originally used a ring punch to remove the button of cartilage. Removal of a circular piece of the anterior tracheal wall permits easy insertion of tracheal cannulae and prevents deformity of the tracheal cartilages by pressure from the cannula. The circular "button" or cartilage thus removed is about the size of the tracheotomy tube to be inserted. Another type of punch has been described by Waldapfel for removing this tissue, but we have had no experience with it. Before the trachea is opened a soft rubber urethral catheter is attached to the suction apparatus. This catheter is inserted into the trachea to aspirate blood or secretions.

The tracheotomy wound is not closed, and the only dressing applied is the gauze squares cut or perforated and placed around the tracheotomy tube. A tube is selected according to the patient's age and is inserted to a distance just proper to allow free breathing without danger of being dislodged. Care is taken not to allow a long tube to impinge on the anterior tracheal wall and thus produce cough, granulations or bleeding.

We have used the Jackson tubes made by Pilling exclusively because of their availability, proper curvature and generally satisfactory design.

The tape around the patient's neck is tied in a square knot (not a bow knot) and is preferably tied on one side rather than behind where the knot causes discomfort as the patient lies on his back.

#### Errors and Accidents Accompanying Tracheotomy

1. Too short an incision prolongs the operation and makes it more difficult. The incision is inconspicuous after it heals in most cases. Cosmetic surgery and safe surgery are not always compatible. The longer incision certainly makes tracheotomy safer by bringing all parts of the operative field into clear view.

2. After incision of skin and superficial fascia the next layer may not be separated in the midline and the operator may become disoriented.

3. The dome of the pleura may be punctured

as it bulges up into the wound, and pneumothorax may be induced.

4. The knife used to incise the trachea may be carried through the posterior wall of the trachea into the esophagus.

5. The cannula may fail to enter the tracheal lumen and may make a false passage outside the trachea. This is not as apt to occur if a "button" of the tracheal wall has been removed as described in the section on operative technique (Mosher's punch operation).

6. The operator may fail to identify the cricoid cartilage before he opens the trachea. This may lead to division of the cricoid and subsequently to laryngeal stenosis.

7. An improperly fitted tube causes erosion of structures pressed upon and may lead to various undesirable complications.

8. Entrance of blood into the trachea can be prevented by proper hemostasis unless there is urgent need for opening the trachea. If dyspnea is marked a small amount of bleeding can be ignored and the patient turned after insertion of the cannula so that the blood will not run into the trachea. The bleeding can be controlled later if it does not stop spontaneously.

## Postoperative Complications

1. Emphysema of subcutaneous and fascial layers of neck occurs when air is forced into the tissues through the tracheotomy wound. Suturing of the wound favors the production of emphysema. Packing of the wound with vaseline gauze decreases the ease with which air is forced into the tissues. Some surgeons impregnate this gauze with sulfonamide drugs.

Emphysema of the mediastinum has occurred in several of our cases at Minnesota but no serious result has ensued. Pneumothorax may follow emphysema of the mediastinum or may be produced by puncturing the dome of the pleura as it projects up into the neck wound. This complication is serious and must be dealt with by physicians accustomed to handling pneumothorax. Unless the pneumothorax is bilateral it usually is not a fatal complication.

2. Blood in the mediastinum was found at autopsy in one case but it was not definitely established that this was not a postmortem artifact.

3. Laryngeal or tracheal stenosis need not follow properly done tracheotomy.

4. Wound infections are rare particularly since antibiotic therapy and chemotherapy have been available.

5. Tracheitis usually follows tracheotomy. This is transitory. Excessive tracheal secretion is produced for a few days but after a week or ten days this decreases markedly.

## Postoperative Care

Dr. Chevalier Jackson has emphasized in his writings that tracheotomy is not an object in itself. It is done to permit the patient to get air into his lungs. All the aftercare is directed at keeping the tracheotomy tube open and the wound clean.

When the patient goes to his room from the operating room, an exact duplicate of his tracheotomy tube is sent with him. It is most important that this tube be supplied with its own inner tube and obturator. Obturators and inner tubes usually fit only their own outer cannula. Lack of a proper obturator may be a very serious matter, if it delays changing of a tracheotomy tube. The extra tube is kept sterile on a tray with supplies for instant changing of the tracheotomy tube in case of emergency.

In addition to the tray containing the extra tube and its supplies, a general utility tray is provided. This holds the solution and materials for cleaning the inner cannula, as well as the suction tubing. The use of this tray will be discussed below.

Upon his return from the operating room, the patient is placed in a bed with the head elevated. The pillow is rubber covered. Water or portable machine suction is in the room at all times. The suction is so placed as to be instantly available for use in tracheal aspiration. The rubber catheter is always connected to the suction tube.

When the air of the patient's room is dry, it must be moistened to aid in the liquefaction of tracheal and bronchial secretions. Various methods of humidification have been employed. These include:

1. The patient's bedroom is rendered moist by cold humidifiers which spray a fine mist into the air by a centrifugal action.

2. A nebulizer may be connected to the tracheotomy tube and forcing of air or oxygen through the nebulizer from a tank of compressed gas, as described by Albers.



## TRACHEOTOMY—PRIEST

3. A centrifugal cold humidifier may be connected to an oxygen tent as advocated by Davison.

4. An atomizer spraying into an oxygen tent as described by Platou.

5. A moistened gauze sponge may be placed over the tracheotomy tube and may be replaced frequently.

6. Instillation of normal saline into the tracheotomy tube with a dropper. Proper precautions to prevent breakage of the dropper and entrance of glass into the trachea must be taken. The use of a short piece of rubber catheter on the end of the dropper minimizes the danger of glass fragments entering the trachea.

The patient is closely watched for hemorrhage and for closure of his tube by secretions or blood. The inner tube is suctioned frequently. When the rubber catheter is introduced into the tracheal cannula, the catheter is pinched shut until it has been inserted as far as necessary. This prevents the tip of the catheter from engaging the tracheal wall, or other tissue during introduction. Some surgeons instill normal saline into the trachea before tracheal aspiration is done. The saline loosens crusts and dilutes thick secretions. Some surgeons limit the extent to which the catheter can be inserted by the nurse by wrapping a collar of adhesive tape around it.

The inner cannula is changed every two to four hours, as ordered by the surgeon. It should not be left out of place for more than ten minutes at the longest. The outer tube is thoroughly sucked out before the inner tube is replaced. If this is not done, accumulated secretion is pushed into the trachea by the inner tube as it is introduced. The inner tube is cleaned by pushing a pipe cleaner through it. To clean an inner tube properly with an ordinary applicator is impossible.

The outer tube and the dressings are usually changed daily by the doctor, but some physicians change the outer tube at longer intervals.

### CLEANSING OF TRACHEOTOMY TUBE

1. Rinse thoroughly with cold water.
2. Soak in sodium bicarbonate solution for one or two hours.
3. Cleanse, using special curved brush. These brushes come in various sizes. They may be obtained from the Pilling Company in Philadelphia.
4. Put on tie straps and boil for ten or fifteen minutes. Wrap with sterile towel and leave in patient's room at all times.

### SPECIAL INSTRUCTIONS FOR NURSE IN IMMEDIATE CHARGE OF PATIENT

(Modified from Chevalier Jackson)

1. Read carefully all of above material pertaining to aftercare.
2. Wipe away secretions before they are drawn in by inspiration.
3. A patient with a properly fitting cannula free of secretions breathes quietly and noiselessly. Any sound demands immediate attention. Listen with ear close to cannula.
4. A patient with a tracheotomy tube often has no voice and cannot call for help.
5. Watch for loose parts on the cannula.
6. Watch color of lips, ears and face.
7. Report immediately if food or drink leaks through wound.
8. Never leave patient unwatched.
9. Remember that life depends on an open cannula if no air comes through the mouth or nose.
10. A baby's small cannula is plugged by only a little secretion.
11. Don't wear small children out by too much nursing care.

### INSTRUMENTS NECESSARY FOR EMERGENCY TRACHEOTOMY

- 1 Scalpel, ordinary and pointed.  
blades (Bard-Parker No. 10 and 11).
- 6 Hemostats.
- 1 Tracheal hook and spreader.
- 2 Allis forceps.
- 1 Tissue forceps (with teeth).
- 1 Dissecting scissors.
- 1 Suture scissors.
- 2 Small ribbon or rake retractors.
- 2 Suction tips—one metal and one rubber catheter about No. 12F.
- 1 5 c.c. syringe and needle for local anesthesia.
- 1 2 c.c. syringe and hypo needle for injection of cocaine into trachea.
- 1 Needle holder.
- Needles.  
Plain 000 tie.  
Medicine glasses.  
Gauze sponges.  
Tracheotomy tubes—provide duplicates of size selected by surgeon.

### SUPPLIES TO BE KEPT ON TRAY WITH TUBE IN PATIENT'S ROOM

- Scissors for cutting gauze.  
4-2 inch or 2.5 inch gauze squares.  
Basin for saline used to clean wound.  
Duplicate of tracheotomy tube worn by patient, complete with inner tube, obturator, and tape to tie around neck.

### MATERIAL TO BE KEPT ON UTILITY TRAY

- Basin holding about 250 c.c. 5 per cent sodium bicarbonate solution for washing inner and outer cannulae.  
Basin containing about 250 c.c. normal saline solution and two or three 2-inch gauze squares.
- 2 Robinson two-hole catheters (No. 14 and No. 16F), with ends cut off square and made smooth.
  - 2 Old hemostats—general utility.  
Emesis basin.

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## FUNDAMENTAL AND CLINICAL ASPECTS OF PULMONARY HYPERTENSION

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COURNAND and his co-workers, in 1941, developed the technique of venous catheterization of the right ventricle of the heart,<sup>2</sup> originally described by Forssmann,<sup>7</sup> to the point where it was adopted in many centers as a safe and important procedure for the investigation of circulatory dynamics in the intact human subject. The use of the Hamilton manometer in 1944 to record pressures optically through the catheter,<sup>3</sup> and the subsequent demonstration by Dexter that the pulmonary artery could be entered with safety and ease,<sup>4</sup> has permitted the accurate measurement of pulmonary arterial pressure in man.

A radio-opaque catheter is inserted into the median basilic vein of the arm and passed under direct fluoroscopic vision into the right atrium, right ventricle, and pulmonary artery. The catheter is kept patent with a slow continuous saline drip, to which it is connected by a three-way stopcock. The Hamilton manometer, which is connected to the catheter at the three-way stopcock by a short piece of lead tubing, is a rigid brass tube filled with air-free distilled water and closed at one end by an elastic metal membrane.<sup>8</sup> An attached mirror reflects a vertical light beam onto a recording camera. Pressure changes within the system cause slight motion of the membrane, attached mirror, and reflected light beam producing a pressure curve when photographed. The system is calibrated with an ordinary mercury manometer. Pressures are recorded at multiple points in the pulmonary artery, right ventricle, and right auricle as the catheter is slowly withdrawn. A respiratory tracing and one lead of the electrocardiogram are recorded simultaneously.

Though requiring special equipment and a trained team of three or four workers, the details of the technique are easily mastered with careful practice. The procedure is entirely safe in normal subjects and in selected patients with heart disease. Severe coronary artery disease, myocardial

infarction, pulmonary infarction, and chronic or serious disturbances of rhythm are contraindications to the procedure. There is danger of air embolism in congenital cardiac defects with a shunt of blood from the right to the left ventricle of the heart, although small amounts of air entering the right ventricle from the saline drip are relatively innocuous if no shunt from the right ventricle to the systemic circulation exists. Patients undergoing venous catheterization experience no pain or undue discomfort. Local novocaine infiltration at the site of the skin incision over the antecubital vein employed for catheterization is the only anesthetic agent needed.

The systolic pressure is measured on the ventricular pulse curve to avoid artefacts which frequently occur in the pulmonary arterial curve due to "whip" of the catheter induced by ventricular ejection. The diastolic pressure in the pulmonary artery is measured on the pulmonary arterial curve at a point corresponding to the end of ventricular diastasis which is usually synchronous with the P wave of the electrocardiogram. Pressures are measured through a complete respiratory cycle from the peak of one inspiration to the peak of the next inspiration to take into account respiratory variation.

In twelve normal subjects, the average pressure in the pulmonary artery was  $20.1 \pm 3.7$  mm. Hg. systolic and  $8.8 \pm 1.2$  mm. Hg. diastolic with a normal range of from 11 to 26 mm. Hg. systolic and 5 to 11 mm. Hg. diastolic, respectively.<sup>6</sup> Pressures are relatively constant in any one individual and the normal range for the group is narrow. Factors, such as anxiety and exercise, which can greatly increase pulmonary blood flow, have little or no influence on the pulmonary arterial pressure in normal subjects. On the other hand, Hickam and Cargill<sup>9</sup> have recently shown that patients with congestive heart failure cannot increase their blood flow in response to exercise. The pulmonary arterial pressure in such patients is elevated at rest and shows a further marked elevation during exercise.

The following six disease states are implicated in the pathogenesis of pulmonary hypertension:

From the Veterans Administration Hospital and the Department of Internal Medicine, University of Minnesota, Minneapolis, Minnesota. Published with the permission of the Medical Director, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the author.

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, June 8, 1948.

1. Mitral stenosis and/or insufficiency.
2. Left ventricular failure from any cause.
3. Congenital cardiac defects where the shunt of blood is from left to right, particularly patent ductus arteriosus and interauricular septal defect, and occasionally Roger's disease. Eisenmenger's complex is also implicated.
4. Pericarditis, whether due to acute pericardial effusion or chronic constrictive pericarditis.
5. Certain cases of pulmonary emphysema.
6. Primary pulmonary arteriosclerosis.

In patients with mitral stenosis and dyspnea on exertion but without hepatomegaly or peripheral edema, there is a direct correlation between the degree of disability and the development of pulmonary hypertension. Patients with the findings of mitral stenosis who are asymptomatic have little or no elevation of pressure in the pulmonary artery, whereas patients with the symptoms of advanced mitral stenosis show elevations of pressure which can approximate or equal systemic arterial pressure. Such an elevation of pressure in the pulmonary artery carries a poor prognosis.

Patients with left ventricular failure due to hypertensive heart disease or aortic valvular disease show mild to moderate elevation of pressure in the pulmonary artery. There is no correlation between the degree of disability and the degree of pulmonary hypertension in left ventricular failure.

There is evidence to indicate that moderate or severe pulmonary hypertension is due in large part to increased resistance to flow through the pulmonary vascular bed and is not due entirely to back pressure from the left auricle. This is particularly true in mitral stenosis.

Excluding technical errors, a narrow pulse pressure in the pulmonary artery, with a systolic pressure which is distinctly lower than that in the right ventricle, is diagnostic of pulmonic

stenosis.<sup>5</sup> The accurate diagnosis of pulmonic stenosis is of practical value in that it distinguishes the tetralogy of Fallot from Eisenmenger's complex. Such a distinction is obviously crucial in the proper selection of patients for the Blalock operation.<sup>1</sup>

### Summary

1. The method of determining the pressure in the pulmonary artery has been briefly described.
2. The normal average value for the pulmonary arterial pressure has been defined as 20/9 mm. Hg.
3. The six disease states implicated in the pathogenesis of pulmonary hypertension have been listed.
4. The degree of pulmonary hypertension is an objective measure of the disability in mitral disease and is of value in prognosis.
5. The determination of pulmonary pressure is of practical value in congenital heart disease when the accurate diagnosis of pulmonic stenosis aids in the selection of patients for cardiac surgery.

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In the treatment of pulmonary tuberculosis, complete bed rest is the foundation upon which the physician builds. In addition to this, collapse therapy of various kinds is used to provide local rest to some portions of the lung to initiate healing of the diseased process, to correct an unfavorable mechanical situation such as the presence of a cavity in the lung parenchyma, or to speed up the healing process. With the addition of collapse therapy, one may shorten the time of complete bed rest, allowing the patient to be ambulatory and return to a productive occupation at an earlier date.—HAROLD GUYON TRIMBLE, M.D., *Am. Rev. Tuberc.*, May, 1948.

## DISTURBANCES OF THE NAILS PRODUCED BY BASE COATS

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**W**ITHIN the past few months physicians have observed a new disorder of the nails produced by base coats. There are several brands which are applied directly to the nails beneath ordinary nail polish to prevent the latter from chipping and to reduce the frequency of application. Base coats have been on the market for several years, and in 1947 new formulas were introduced. Our attention was first called to reactions to the new base coats at a meeting of the Chicago Dermatological Society in March, 1948. Subsequently, at a meeting of the American Dermatological Association in April, 1948, the question of these peculiar changes was again considered. It was apparent that cases were being observed in various parts of the country. Positive patch tests were obtained in individuals so affected. Since these cases may be confused with psoriasis or mycotic infections of the nails, we thought that it would be of value to call the disorder to the attention of physicians in order that it might be recognized and these patients advised to discontinue the use of base coats.

### Clinical Features

The clinical features of the changes produced by base coats are pathognomonic even though they vary in severity. One of the most striking changes is the discoloration, which may vary from magenta to different shades of brown. Generally the distal half is affected—occasionally the entire nail. The normal translucency is usually lost, although in two cases there was a waxy appearance. In most cases which we have seen, all of the fingernails have been involved, some more intensely than others. In addition to the discoloration, the nails are much drier than normal; they become brittle, and some present longitudinal striations. Onychauxis was observed in one patient. Another important feature is the deposition of hyperkeratotic material beneath the nail which leads to varying degrees of onycholysis. In most cases the latter is only partial and the nails are usually not shed, although they may

become loosened. We saw one patient, however, in whom three finger nails were completely lost. We observed paronychia in one instance accompanied by pain, a feeling of numbness and diminution of the tactile sense.

Most cases which have been observed by physicians who are not acquainted with this disorder have been diagnosed psoriasis or onychomycosis. Although psoriasis of the nails may occur alone, it is most unusual, and concomitant lesions elsewhere on the body aid greatly in making a correct diagnosis. We have not observed the characteristic stippling in this disorder which is perhaps the most important characteristic of psoriasis of the nails. Neither have we seen the discoloration in psoriasis which is present in this disease.

Onychomycosis is characterized by a yellowish discoloration rather than the reddish-brown color present in this disorder. There may be loss of luster in both diseases. In mycotic infections, however, the nails as a rule become soft and crumbly, while in this disease they are hard, dry and brittle. In monilial infections, paronychia is a common complication, but it is apparently an unusual manifestation of disturbances produced by base coats. Culture of the involved nails aids in differential diagnosis.

Apparently the time required to produce changes in the nails by base coats varies greatly in different individuals. Most women who present these changes are unable to give an accurate history of onset because the manicurist applied colored enamel before the patient had a chance to examine the nails. Most of the patients whom we questioned stated that the base coat was used for several weeks or months before the discoloration was noted. It is our impression that once the process starts, progression is rapid. There has not been sufficient observation to formulate an exact prognosis, and undoubtedly the time required for the nails to return to normal depends to a great extent upon the amount of change produced before the base coat is discontinued. In one patient under our care, in whom only the distal halves of the

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Fig. 1. Discoloration of nails without onycholysis.



Fig. 2. Discoloration with onycholysis of varying degree in different nails.



Fig. 3. Onycholysis of thumbnail and complete loss of nail of fourth finger.

nails were involved, there was steady improvement following discontinuance of the base coat, and within a period of six weeks the nails were almost normal. In another case all of the finger nails were involved in their entirety, and several were shed, and after eight weeks there has been but slight improvement.

#### Histologic Features

The histologic features of disturbances of the nails produced by base coats are reported through the courtesy of Dr. Louis H. Winer of Beverly Hills, California, who performed a biopsy on a characteristic case. Dr. Winer reported that the nail itself and the epidermis forming a cover for the upper portion of the tip of the finger showed no important pathologic changes. The epidermis of the proximal portion of the nail bed near the root of the nail, however, showed hyperkeratosis and vesicles containing nests of solidly packed, nucleated, keratinized epidermal cells. The nests of abnormal cells apparently forced the nail to become separated from its bed. Only the epidermis was apparent since the cutis was too thin and firmly attached to the bone to be included in the histologic section. Dr. Winer felt that the histologic picture was similar to that of contact dermatitis in other locations.

#### Experimental Applications

Patch tests with base coats offer an unusual problem in application and interpretation. The ideal test-area should be the fingernail or toenail. Multiple applications should be made, and some of the applications of base coat should be covered with nail enamel. Although glabrous skin may prove a suitable site for patch testing in this con-

dition, too many of the procedures used in beauty parlors are omitted to make this method exactly comparable to patch testing in ordinary contact dermatitis.

Experimental applications of base coat and base coat plus enamel were applied to toenails of two patients at weekly intervals in an attempt to determine the time required to produce changes of the nails. Before each application the toenail was cleaned with polish remover. Both of the patients had disturbances of the fingernails produced by base coats.

Base coat alone produced changes of the toenail in five weeks; base coat and colored enamel, in three weeks. In both instances the first change was an amber discoloration at the lateral border of the nails. Paronychia developed in five weeks in the nail to which base coat and enamel had been applied. In ten weeks subungual hyperkeratosis developed in the same nail, and it had become completely discolored. This experiment suggested that the combination of base coat plus the occlusive covering of enamel produced changes more rapidly than the base coat alone.

Two patch tests with base coat on the anterior portion of the thigh were positive in seventy-two and ninety-six hours and remained for several days. Nail polish gave no reaction after twenty-four, forty-eight and seventy-two hours. The positive reactions of base coats did not extend beyond the site of application, thus resembling reactions produced by mechanical irritants.

#### Comment

Several questions arise in considering the pathogenesis of these changes of the nails. Is the substance producing the disturbances a primary

irritant, or is a process of hypersensitivity involved? Does the substance penetrate the nail plate, producing damage in the nail bed, or does it reach the nail bed from beneath the tip of the nail or at the base or lateral margins? Since the introduction of the newer base coats there have undoubtedly been many millions of applications, yet the reactions have apparently been relatively few.\* For this reason it seems to us that the material must not be a primary irritant and that individuals who develop this type of disturbance must be hypersensitive to some ingredient in the base coat. Certain types of nails, because of their structure, thickness, fragility, or their chemical or allergic reactivity, may be predisposed to changes following the application of base coats. The disturbances vary in different nails of the

\*One manufacturer alone reports the sale of more than 2,000,000 bottles, meaning 130,000,000 applications.

same person and in different individuals. Even though most manicurists use caution to avoid application of substances beneath the nail it is impossible to avoid entirely their deposition under the free edge or beneath the cuticle at the base and lateral margins. Since we do not know the formulas of base coats, we cannot exclude the possibility that substances actually penetrate the nails, producing reactions in them and the subungual tissues. The positive reactions to patch tests with base coats in individuals who present these changes suggest that there is an actual contact dermatitis of the nail bed. The accumulation of hyperkeratotic material beneath the nail causes onycholysis and, in some cases, complete shedding of the nail. This report is preliminary, and considerable work is necessary before the problem can be completely appraised.

## TRACHEOTOMY: INDICATIONS AND TECHNIQUE

(Continued from Page 1215)

### Decannulation

This is accomplished in patients having properly performed tracheotomies by simple removal of the cannula after the patient has demonstrated his ability to breathe with the cannula closed for twenty-four to forty-eight hours. We have used rubber plugs whittled out of large rubber corks to close our cannulae. It is important to use rubber stoppers, as fragments of ordinary cork may become pulmonary foreign bodies. These rubber stoppers should be secured to the tape encircling the patient's neck by a piece of thread 6 to 8 inches long. They are tethered by this thread when blown out of the tracheal tube if the patient coughs. In some cases half-round corks are used to partially occlude the lumen before full corking is done. Some surgeons use the obturator of the tracheotomy cannula as the stopper when trying out the patient's ability to get along with

his tube occluded. We have not felt that this was quite as safe as the method outlined above.

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# Case Report

## EARLY ACUTE BENIGN SYPHILITIC HEPATITIS WITH JAUNDICE

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A case of early acute benign syphilitic hepatitis with jaundice is reported because of its rarity and because of suggestions for improving treatment. The example cited here is the only one recorded at the Ancker Hospital in Saint Paul.

### Case Report

M. R., a white ward-maid, aged twenty-six, consulted her family physician February 18, 1947, because of a headache, a generalized eruption and jaundice. The patient stated that she noticed a vaginal discharge and dysuria about January 1, 1947. There had been numerous sexual exposures. A chancre was not found. She had a florid, generalized, macular secondary syphilide with mucous patches and patchy hair loss. A generalized superficial lymphadenitis was present, with the largest lymph nodes in the left inguinal region. The blood Wassermann reaction was strongly positive. She stated that jaundice appeared suddenly February 16, 1947. She was deeply jaundiced when admitted to Ancker Hospital on February 21, 1947. Severe headaches had been present for one week, and they were characterized by morning remissions and nocturnal exacerbations. The liver extended 1 inch below the costal margin, and the spleen was not palpable.

On February 21, the patient was put on a high caloric, low fat diet and given multivitamines. 50,000 units of aqueous penicillin were given intramuscularly every three hours.

On February 23, the jaundice was more intense and the liver and spleen were 2 inches below the costal margin.

The next day, the patient was nauseated and had anorexia. The penicillin was stopped, and 1 c.c. of bismuth subsalicylate in oil was given intramuscularly. This was continued at three-day intervals for nine weeks.

By February 27, the nausea and headache had disappeared, the liver and spleen were smaller and less tender.

On March 23, the liver was barely palpable, the spleen was not palpable, and the jaundice had decreased a great deal. 40,000 units of aqueous penicillin were started intramuscularly every three hours and continued until 4,800,000 units were given.

On July 1, the patient felt well, the jaundice had disappeared, the liver and spleen were not palpable, and all physical signs of syphilis had disappeared.

On September 6, the patient was asymptomatic and physically normal. The blood and spinal fluid Wassermann reactions were negative, and the other spinal fluid findings were normal.

Moore<sup>2</sup> stated that hepatitis of early syphilis occurs not more than once in 1,000 persons recently infected with syphilis. Stokes<sup>4</sup> observed only one undoubted case of early syphilitic hepatitis with jaundice in a survey of 300 patients with early syphilis. Wile<sup>6</sup> believed that the incidence was under 1 per cent.

### ICTERUS INDEX CHANGES

Date	Icterus Index
2-25-47	165
3-1-47	200
3-6-47	225
3-9-47	150
3-14-47	83
3-25-47	42
4-1-47	30
8-8-47	7
12-20-47	5

The best working classification of syphilis of the liver seemed to be that of O'Leary<sup>3</sup> and his group. The classification follows: (1) early acute benign hepatitis, (2) syphilitic destructive hepatitis, or acute yellow atrophy, (3) subthreshold hepatic syphilis detected by functional tests, (4) hepatorecurrence, (5) mild chronic hepatitis of latent syphilis, (6) diffuse and localized gummatous hepatitis, (7) chronic interstitial pericellular cirrhosis of heredosyphilis and (8) perihepatitis.

Early acute benign hepatitis is a rare complication of the florid eruptive stage of syphilis. The chief symptom is jaundice, and the chief sign is enlargement of the liver. Stokes<sup>4</sup> stated that acute benign hepatitis of early syphilis is difficult to distinguish from intercurrent nonsyphilitic catarrhal jaundice and hepatorecurrence. Differentiation depends on (1) the presence of a chancre or secondary syphilitic eruption, (2) a Herxheimer reaction following treatment and (3) prompt cure if treatment is continued. Waugh<sup>5</sup> stated that there is no record of any patient with benign hepatitis of early syphilis coming to autopsy. Therefore, the pathologic condition of the liver has not been studied in this disease. The modern use of liver biopsy will enable workers to study pathologic changes in the liver.

Treatment for acute early benign syphilitic hepatitis with jaundice has been extensively discussed. Even though all authorities have thought that it was safe to use an arsphenamine preparation, there was a general feeling of uneasiness in doing so. Stokes<sup>4</sup> and others later advocated a combination of bismuth and arsenic. At present, it seems that the combined use of bismuth and penicillin is the most satisfactory treatment. The Herxheimer reaction and symptoms such as jaundice, anorexia and nausea can be controlled by decreasing or temporarily discontinuing penicillin when these signs and symptoms appear.

These reactions can be regulated even better by daily observation of the icterus index. Elliott and Todd<sup>1</sup> noted the value of observing the icterus index as early as 1928. The icterus index goes up before symptoms appear. If penicillin is stopped or the dose decreased, most unpleasant

(Continued on Page 1236)

From the Ancker Hospital, Saint Paul, and the Division of Dermatology and Syphilology, University of Minnesota, H. E. Nicholson, M.D., Director.

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# History of Medicine In Minnesota

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## NOTES ON MEDICINE IN FREEBORN COUNTY, 1857—1900

ANDREW GULLIXSON, M.D.

Albert Lea, Minnesota

*(Continued from October issue.)*

### Itinerants and Charlatans

The itinerant physicians that came with regularity were, as a rule, accepted and given office space by the local fraternity. These were, for the most part, high class men in their respective fields, and did very satisfactory work for their patients.

Charlatans came in numbers, advertising blatantly their lectures for men or for women only, or for special diseases. They usually stayed a few days only and left when exposed by the newspapers.

### Physicians†

**Dr. Albert Clark Wedge** was a pioneer settler and for nearly fifty years was a leading physician in Freeborn County. He was a son of Rev. Albert and Elizabeth (Clark) Wedge and was born in Lewis County, New York, August 18, 1834. He descended from a family of Puritan stock, prominent in the early history of New England. Thomas Wedge, the founder of the family in America, settled in Litchfield, Connecticut, at an early day and five of his descendants were patriot soldiers in the Revolutionary War. The doctor's grandfather, Solomon Wedge, moved to New York state at the beginning of the nineteenth century and settled on a farm in Lewis County. He was a member of the New York militia and took part in the War of 1812. His sister married William Grant of Litchfield, Conn., a member of the family of ancestors of General U. S. Grant; and their son, Asahel Wedge Grant, was the first to respond to the call of the Congregational Society of Foreign Missions for a medical missionary to the Nestorians of Persia. He died at Mosul, Turkey, where he lies buried by the river Tigris, near the site of ancient Nineveh. Albert Wedge, the father of Dr. Wedge, was born in Connecticut in 1808, and was one of a family of eight children. He was educated for the ministry at Hamilton College, New York, and in 1839 moved with his family to southern Ohio, where he was engaged in missionary work. His wife died at Hillsboro, Ohio, in 1840, when the future Dr. Wedge was six years old. In 1847 the father moved with his five children to a farm near Pendleton, Madison County, Indiana. He died while on a visit to Wedge Prairie, Fond du Lac County, where his father and brothers were then residents. Together with his wife, he now rests in the family burial plot at that place.

After his father's death, the family was broken up and Dr. Wedge, aged seventeen, went to Wedge Prairie, Wisconsin, to live with his uncle. Here he attended school, worked on his father's farm, and taught in a country school. In 1854 he entered Ripon College and also studied medicine with Dr. J. Rogers at Ripon. Later he attended Cleveland, Ohio, Medical College, from which he was graduated in February, 1857. After graduation he returned to Wisconsin, expecting to locate at Ripon and practice with his preceptor. But his uncle, Lucius P.

†Physicians are listed chronologically, rather than alphabetically, as in previous histories.



## HISTORY OF MEDICINE IN MINNESOTA

Wedge, had been in Freeborn County and acquired property at Albert Lea and through his uncle's persuasion the young physician concluded to locate in Minnesota. His uncle supplied him with money, provisions, a span of horses, and a covered wagon; and in May, 1857, he drove to Albert Lea, which at that time consisted of a cluster of four or five log houses and about thirty inhabitants. To quote his own words:

"A few days after my arrival in May, 1857, I found the good lady of the cabin trying to feed the hungry men who were her boarders, with nothing to cook but flour, of which she made good bread and starch gravy. After a few days of this fare I concluded that I wanted a little change of diet, and so with the team I had driven from Wisconsin I made a trip to Mitchell, Iowa, to see if I could find something better. I found that we of Freeborn County were in a wilderness, yet here was a garden almost at our door."

He erected a frame building for his office and in July, 1857, the two-month-old newspaper, *The Southern Minnesota Star*, carried the modest card, "Dr. A. C. Wedge, Physician and Surgeon." His clientele was meager and the panic of 1857, with repudiation of currency, brought forth barter as a means of trade. In November, 1857, he performed his first amputation, a double amputation of the feet, necessitated by freezing. This patient died in February, 1858, and became the first case to be entered and adjudicated in the office of Judge of Probate in Freeborn County. In this operation he was assisted by a Dr. Charles S. Tarbell of Shellrock. Dr. Wedge filed a claim for \$100 for his service in the case, and this was allowed in full, including ten bushels of corn. Dr. Wedge filed on lands under the recently passed pre-emption laws, equipped a drug store, and proceeded to take an active part in building up the community. He was elected chairman of the first Board of County Commissioners when the county was organized in 1858. In October, 1859, he married Miss Betsy Blackmer, a sister of Dr. Frank A. Blackmer. They had one child, a daughter, who died in 1905, leaving a son, Albert Wedge Jones. He, succeeding his father, Mark Jones, now conducts a successful insurance business at Albert Lea.

Dr. Wedge enlisted for military service in May, 1862; was commissioned assistant surgeon to the Third Minnesota Volunteer Infantry Regiment and joined his command at Murphreesburro, Tennessee, the same month. On July 13 he participated in the battle of Murphreesboro, in which his regiment was surrendered to the enemy by the colonel in command. Dr. Wedge was ordered to duty in the hospital and later was ordered to Nashville, Tennessee, where he was on duty in the general hospital for several months. His regiment was then exchanged, and he joined it again at Cairo, where it took part in the campaign through Kentucky and Tennessee, joining General Grant's main army at the investment of Vicksburg. In September, 1863, he was commissioned surgeon with the rank of major. He was with General Steel's forces in the expedition to capture Little Rock, and in all the battles connected with the campaign in Arkansas during 1864 and 1865. Together with his regiment, he was mustered out of the service in September, 1865, at Devil's Bluff, Arkansas.

Dr. Wedge was at all times very efficient and faithful as a surgeon and had the fullest confidence of all the officers and men to whom he ministered. He performed especially notable service for the Third Regiment during its stay at Pine Bluff in the spring and summer of 1864. The regiment was then encamped in a swampy, unhealthy locality, and a violent epidemic of malaria broke out. The result was disastrous. A large majority of his command was stricken. From May to August 150 died. The doctor labored incessantly and without adequate medical supplies and, when at last he became infected, no quinine could be

## HISTORY OF MEDICINE IN MINNESOTA

obtained (*Freeborn County History*, 1911). After returning to Minnesota, he resumed active practice, took the place of leadership in civic affairs, and became especially active in Republican politics in the state. He served in the lower house of the state legislature in 1870 and 1871, and was the chairman of the committees on railroad and state prison investigation.

In a vest pocket diary and account book which he kept through 1870 and 1871, the following entries occur:

"Jan. 1, 1870, draw out of bank \$50.00, start for St. Paul; arrive at Ramsey 11½; arrive at Park Place 8:00 P.M.; rather a pleasant day. Sunday, Jan. 2, '70, attend church in the evening; heard Rev. Mr. White. Day very pleasant. Monday, Jan. 3, '70, a lively day, caucus this evening. Tuesday, Jan. 4, '70, House organized today. Wednesday, Jan. 5, attend the Grand Lodge this afternoon. Cold damp wind making it rather unpleasant. Friday, Jan. 7, House adjourned to Tuesday next. Governor and State Officers sworn in today. A stormy day, snow and cold. Saturday, Jan. 8, arrive home at 2½ a.m., find everything lovely. January 9, a stormy morning but pleasant. Amputate leg for Mr. C—. Attend church in the evening. Tuesday, Jan. 11, House meets at 2:00 p.m. No business of importance. Transact some business in state treasurer's office. Sunday, Jan. 16, snow and rain. Very unpleasant. Attend church, hear Rev. Mr. A—; make some calls in the evening. Monday, Jan. 17, a cold northwest storm, so much snow in the air we cannot see; rail cars do not go. Jan. 18, do not get away because of snow."

During the campaign for state senator in 1879, he was opposed by the temperance people. On one occasion he said, "I do not care for the temperance voters and I hope those voters will remember that on election day." But he introduced a bill in the legislature, which was passed, granting county supervisors the power to license and restrain the sale of liquor. He sponsored a bill to set aside internal improvement lands for payment of the old railroad bonds. Later, when these bonds were declared fraudulent and were repudiated by the signature of the governor, Dr. Wedge, with his sterling honesty, remarked: "Any one who votes to repudiate these bonds is a dishonest man."

In the legislative session of 1879-1880, he served on the committees of the state university and university lands and of education and railroads. He resigned as senator in 1881, to accept the appointment as District Collector of Internal Revenue, with office moved to Albert Lea. He was a delegate to about every Republican county and state convention, and to the Republican national convention in 1880, when President Garfield was nominated. He served as Assistant Surgeon General on the staff of both Governors Merriam and Nelson. In 1883 he served, under the governor's appointment, as a member of the State Board of Medical Examiners and Licensers, and for one year was chairman of the board. After the laws were revised in 1887, he also served as a member for many years. In 1878, as a delegate to the State Medical Association's meeting, he served on the executive committee and also as chairman of the committee on surgery. In the October, 1879, meeting, he was chosen president of the State Medical Association and it was decided that the meeting in 1880 should be held at Albert Lea. In 1878 he was appointed on a committee including Dr. Frank Blackmer, to draw up articles of incorporation for the village of Albert Lea. In 1861 he and Dr. A. M. Burnham were the medical representatives on the staff of executioners at the one and only legal hanging in Albert Lea. In 1888 he was chosen vice chairman of the Freeborn County Anti-Horse Thief Association, comprising a captain and sixty vigilantes "organized and ready for business." In 1857 he was instrumental in organizing the first lyceum, under the inspiring name, "The Albert Lea Senate." In 1885 he was chairman of the committee on organization of the Freeborn County

Agricultural Association and County Fair. "No citizen leads Dr. Wedge in enterprise and plans for progress of the people. He provides the fair grounds, including a fast racetrack, for the first County Fair."—*Standard*, 1885.

In 1887 he delivered lectures on physiology to classes at the Presbyterian Ladies' College. In 1889 he was included in Governor Merriam's party to the centennial celebration in New York City. He met and visited with President Harrison, Secretary Windom, Generals Sherman and Schofield, Admiral Porter, and other dignitaries. In October, 1892, he, as a member of the governor's staff, attended the dedication services on Columbus day at Chicago World's Fair. In July, 1890, final articles of incorporation of Freeborn County Agricultural Association were drafted and were signed by Dr. Wedge among the first on the committee. In May, 1896, he was chosen vice president of the National Association of Railway Surgeons. In 1898 the Society of Territorial Pioneers was organized in his office with Dr. Frank Blackmer as historian. In the same year Dr. Wedge was instrumental in organizing the Albert Lea District Medical Association, comprising physicians from Freeborn County and from Worth and Winnebago Counties in Iowa. Dr. Wedge was chosen temporary chairman, and later chairman, of the permanent organization. Twenty-six physicians joined at the first meeting. In 1903 at the organization of the Freeborn County Medical Society, Dr. Wedge was chosen its first president. He was in regular attendance at county and state medical meetings and frequently in attendance at the national meetings. He was a busy physician and surgeon, and charged small fees, as was the practice in those days. In a day book dated 1873, appear the following entries for March:

"C— to visit wife at night, \$1.50; Mr. R— to visit wife and self \$1.00; L— to visit (6 miles) and medicine self \$4.00; Mr. W— to call and advice for self \$1.00; J— to visit baby \$1.00; Mr. A— Obst. wife \$10.00. February 3, 1873, to obstetrics and forceps \$20.00; consultation Dr. Froshaug, office, amputation toe \$5.00."

Aside from his farming and political interests, his hobby was the raising and breeding of thoroughbred shorthorn cattle. In this he performed a great service to the county by building up a better quality of livestock. He raised and bred good trotting horses and attended the trotting races regularly. A long time hobby of his was to serve as helper, adviser, and pensioner for old indigent horsemen. Even until his last years they would come to him for the needed help and comradeship and would depart with the usual \$10.00 or \$20.00. His sterling worth as a man of prominence in the state and his standing and ability as a physician and surgeon have been subjects of various articles in the press and medical journals, and merit remembrance. The least that we can do in honor of this kindly distinguished gentleman is to call to mind his lifelong service to this community.

Nature gave him a sound mind in a sound body, and he needed both to accomplish what he did under the pioneer conditions of life in the region in which he chose to apply his talents and serve his fellow men. He needed courage, he needed ability, and he needed good will; and he possessed them all in abundance. He died October 23, 1911, at the age of 77 years. "At his funeral, business throughout the city was suspended at the order of the mayor, and thousands followed in sorrowing concourse to the grave."—*Standard*, October, 1911. Providence was kind to Freeborn County in providing this true physician and counselor, Dr. A. C. Wedge.

**Dr. Franklin Blackmer** was born in Allegheny County, New York, June 10, 1804. Choosing medicine as his profession, he no doubt read with able preceptors and was graduated. He practiced in Amherst, Ohio, from 1831 to 1856.

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He married Miss Minerva Wilkins in 1833. He came direct to Minnesota in 1856 and settled on land adjoining Fountain Lake, at Albert Lea. One son, Dr. Frank, and one daughter, Betsy, who became the wife of Dr. Wedge, were the only children.

Dr. Franklin Blackmer was recognized as a well-read physician and was highly respected as one of the first settlers. He never engaged in the practice of medicine here in Freeborn County. His death in 1877 was keenly mourned by the old settlers, who shared with him the hardships incident to the new country.

**Dr. George Watson** was the first senator to represent Freeborn County in the state legislature. He served from 1858 to 1862. By provisions adopted at the constitutional convention in 1858, the representative boundaries were changed and Freeborn became attached to Faribault County, forming the fourteenth senatorial district. Dr. Watson was elected senator from this district in 1858 and served until 1860. In 1860 another change was made, connecting Freeborn with Steele and Waseca counties, forming the sixteenth senatorial district. Dr. Watson was again sent to the Senate and served until 1862.

Not much is known of Dr. Watson except that he was a politician. His home was in Sumner village, Moscow Township, which became an historical landmark years ago.

After his service as senator (1858-1862), Dr. Watson moved to St. Paul, where he secured a government position as chief clerk in the surveyor's office, a position he held for about fifty years. He was always referred to as "Doctor" but there is no evidence that he ever practiced medicine (*Freeborn County History*, 1882).

**Dr. Charles S. Tarbell** was located at Shellrock in 1857. The *Freeborn County History*, 1882, refers to C. S. Tarbell as coroner, 1857-1858. The only record that would indicate that he practiced medicine was found in the files of the probate court, in which he filed a claim for forty dollars as a fee for assisting Dr. Wedge in performing a double amputation in November, 1857. The claim was not allowed in full but was reduced to thirty dollars, ten of which was paid with ten bushels of corn in November, 1859. He evidently did practice at Shellrock at that time but left during the war.

In 1857 a newspaper notice refers to a **Dr. Yates**, located in Riceland Township, but nothing further is known of him.

**Dr. Alfred Mark Burnham** was born in Genesee County, New York, October 16, 1825, and received his early education there. He attended the public schools, Bethany Academy, and the schools at Springville and Centerville. He read medicine with Drs. Steward and Farmer, finally entering the University of Buffalo and graduating from the department of medicine in 1853. He came to Freeborn County in 1857 and settled on land which he named Paradise Prairie and which later contained the townsite of Itasca.

His first winter was spent at Shellrock (Glenville), where he built a hotel, and on a contract for \$244 constructed the first bridge across Shellrock River. Later he constructed a steam-propelled boat called the Itasca, on which he transported lumber and logs (no doubt from government lands) up the Shellrock River, Lake Albert Lea, and on up to his town-site, Itasca, on Paradise Prairie. Itasca soon claimed a hotel, a blacksmith shop, a shoemaker shop, a drugstore, a newspaper, and a dozen houses. The purpose of all this was to secure for Itasca the dignified status of county seat.



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In the guerrilla warfare with Albert Lea that followed, Itasca lost, and soon passed into oblivion. A couple of instances may be mentioned. Itasca followers with Dr. Burnham executed a \$6,000 bond, pledging to build a court house of brick, to be completed in two years. Albert Lea followers with Dr. Wedge executed a \$5,000 bond, pledging to furnish a court house and jail free of all cost to the county. Dr. Burnham had acquired the ownership of the hotel at Bancroft on the authority of a dollar and thirty-five cent tax certificate. This he moved to Itasca by two strings of ten ox teams, each led by a team of horses. At the same time a Presbyterian minister came to Albert Lea and was very enthusiastic about building up institutions in the interests of his denomination. The Albert Lea group (with the able assistance of Dr. Wedge no doubt) sensed his enterprising spirit and suggested to him that the hotel at Itasca would be a splendid suburban location for such a school. The minister approached Dr. Burnham, who, delighted with the idea and being anxious to do what he could to aid in the work, was willing and ready to sell the hotel. The transfer was made, the Albert Lea proprietors paying for it. It was then torn down and moved to the county seat. The scheme having served its purpose, no more money was advanced; and the ardent proponent of Itasca as a school-site moved on to some more promising locality.

It is difficult to determine the amount of time Dr. Burnham devoted to the practice of medicine. At divers times his speculative ventures took him far afield.

"Dr. Burnham, of Itasca fame, discovered another gold mine five miles west of Ft. Saunders; specimens are encouraging."—*Frontier Index*, Ft. Saunders, Dakota, February 20, 1866.

"Dr. Burnham, the inimitable, reports he has a grain sack full of greenbacks acquired while under contract with the Union Pacific Railroad for cutting railroad ties in Wyoming Territory."—*Standard*, 1869.

An article by Ida Picket Bell, titled "Pioneer Family Life at Itasca," states:

"Another boomer was Dr. Alfred Burnham, a bright reckless young physician, who came from Buffalo with his young wife. He gathered around him a bunch of adventurers, and there were wild stories about them, which were probably much overdrawn but which surely had some foundation in fact. His wife was a darling and was beautiful, but the kind of men she had to live with made her do some strange things. She would either have to do that or sink under the current. But she was not the sinking kind. My mother found her to be a warm-hearted, helpful friend and we children learned to love Aunt Russia. She died childless, June 7, 1865, and lies buried in a lonely little graveyard on Paradise Prairie."—*Albert Lea Tribune*, November 7, 1932.

Dr. Burnham enlisted in the Tenth Minnesota Regiment, October 11, 1862. He was discharged on special order, on a peoples' petition in October, 1863.

"We are informed that Dr. Burnham of Itasca is scattering his money with a lavish hand. He is remodeling his dwelling, also repairing farm buildings, building barns and granaries and erecting several miles of fence."—*Standard*, June, 1871.

"Dr. Burnham is getting a good deal of practice already. The doctor has many friends and will have a large practice when people know that he is available."—*Standard*, February, 1880.

"Dr. Burnham, together with Dr. Frank Blackmer, shipped six carloads of cows to Laramie, Wyoming. Dr. Blackmer will spend the winter in Denver and Dr. Burnham will go to the West Coast with his family, having disposed of all his properties here."—*Enterprise*, January, 1884.

"In a letter he writes as follows: 'Sold cattle and horses same day; bought ticket to Portland; got into cars 9:00 P.M., dog, parrot, children, wife with three saratogas and self in black dog skin coat. Arrived at Portland seventh day. Took in town of Portland by riding every street car to the end. Fine town, lots of business. Took boat forty miles, then via Northern Pacific to Tacoma. Rest a day, rent house which cost three hundred dollars, at

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sixteen dollars per month. Ships coming and going, streets full of strangers, one hundred stores, one thousand buildings under way, large hotel and school house, fine teachers and books. Business enough here for me. Inhabitants American entire and all like a mess of maggots. I have come home."—*Enterprise*, March, 1884.

In 1886 Dr. Burnham moved to the coast and finally accomplished his heart's desire in founding the town-site of Gig Harbor, Washington. Dr. Burnham's second wife was Miss Hord. To this union four children were born: Lulu S., Frank M., Clarence S., and Alley.

"The many friends of Dr. Burnham, who was a conspicuous figure in pioneer days of Freeborn County, will regret to learn of his death at Gig Harbor, Wash., July 11, 1896. He was one of the biggest-hearted men that ever lived and was admired for his sterling qualities. He was bluff and outspoken, but a kind-hearted, generous man, a good husband and father."—*Enterprise*, July 16, 1896.

**Dr. J. K. Moore.**—A short paragraph in Freeborn County History, 1874, states that in 1861 J. K. Moore came to Freeborn village and offered his services as the first physician in that village. He evidently left very soon, as no record is found of his continuing practice there.

**Dr. Elizabeth (Heath) Stacey**, wife of Judge E. C. Stacey, was born at Pike, Allegheny County, New York, October 4, 1817. She died at Albert Lea, December 19, 1896, in her ninetieth year. She came with her husband to Freeborn County in June, 1856, locating at Geneva. It is told that she named Geneva and the adjoining beautiful Geneva Lake. In December, 1859, Doctor and Judge Stacey, together with their children, moved to Albert Lea, where the family resided until the father and mother died. In 1840, at the age of twenty-three, Dr. Stacey was united in marriage to Judge Stacey, son of the noted Nathaniel Stacey of the Universalist Church. For a number of years thereafter, the family resided at Columbus, Warren County, Pennsylvania, until they came to Minnesota in 1856. Four children, one daughter and three sons, were born to this union: Dorr, Day, Lynn, and Lizzie. The last two died early in life. Judge Stacey died in April, 1897. Dr. Stacey, a brilliant student and teacher, was a remarkable woman of unusual strength of character. She was a practicing physician for many years, especially during the Civil War. She attended many obstetrical cases during those years. She was said to be the first woman physician to graduate from the University of Michigan Medical School and the first regular woman physician to practice in Minnesota.

She was faithful both to the responsibilities of her calling and to those of her household, and considerate toward her neighbors and their welfare and happiness. She was an ardent temperance worker and held high places for many years in the councils of the Good Templars. She traveled a great deal in the 1870's and 1880's, both in this country and abroad, including Mexico, Alaska, Europe, Egypt, and Palestine. She was an ardent worker and worshipper in the Universalist Church, to which she freely gave of her counsel and her means. She died after a brief but "acute attack of stomach trouble," December 19, 1896 (*Standard*, December, 1896).

It is a pleasure to bring to light the memory of this aristocrat, this patriotic pioneer physician and philanthropist.

(To be continued in the December issue.)

# President's Letter

## "LICENSE TO PRACTICE"

William Osler, the renowned professor of clinical medicine, had just returned to the United States after a wedding trip to England and was being entertained at the Minnesota Club one October evening in 1892 by members of the Minnesota Academy of Medicine. After dinner the guests adjourned to the House of Representatives in the old State Capitol where he then spoke on "License to Practice." A summary of this address, as well as of the subsequent history of medical licensure in Minnesota, is presented in the July issue of MINNESOTA MEDICINE, and I commend it to all members of the State Association as worth-while and informative reading.

The entire article sets forth the principles of practice which form the main points of the law as it exists today, as recorded in MSA 147.02 under the heading of "Examination and License; revocation." Nine specific rules are listed, defining the limits of "immoral, dishonorable or unprofessional conduct." It would be well for everyone to refresh his acquaintance with his minimum professional obligations as set forth in these nine rules.

It is, of course, impossible to comment on each of these in this brief letter. Consciously or otherwise, all of you are acquainted with them. The one, however, which bears particular emphasis at this time is No. 9, and reads, "Conduct unbecoming a person licensed to practice medicine or detrimental to the best interests of the public." Although the occasions when the board has found it necessary to enforce this particular point are rare, I am sorry to say that some such situations have occurred.

Will anyone disagree that privileges granted the practicing physician by his license also impose upon him a strong obligation to behave in a manner thoroughly becoming the intent of rule No. 9? Right now certain types of medical testimony are causing great concern to our State Association. Nothing ranks higher than truth, and it is imperative that medicine always be on a high plane, not only in the hospitals and in daily practice, but also in its relation to other professional groups. By the same token there is no room for professional jealousy, if medical practice is to continue in high respect. There is no reason for ever hearing the phrase, "Well, Dr. Jones and Dr. Smith just do not get along with each other." I am sorry to say that instances have arisen when the Board of Medical Examiners has been sorely pressed to avoid punitive action suggested by the attitude of one physician toward another.

Ours is a profession which should be always above petty jealousies, not only for the sake of the patient and of medical progress *but for our own sakes*. Does anyone think for a moment that actions within our membership which reflect adversely upon the profession do not suggest to our customers—the lay public—that our job could be done better under government direction? Let's keep first and foremost in mind the fact that public opinion in this, as in other respects, must be served through a full sense of responsibility which seeks to avoid petty quarrels and jealousies and actions which are unbecoming and in clear violation of accepted rules. Try as we doctors may, we shall not succeed in building public good will—we shall not have the public fighting on our side—if the nature of the everyday conduct of *any one of us* leads the public to believe that its welfare is not being best served because of our poor judgment and poor professional manners.

The history of licensure in Minnesota reveals that it has steadily encouraged the highest standards of practice in medicine. We physicians must strive in every way to maintain that high level of service and never allow ourselves to be guilty of conduct which may overstep the privilege inherent in our license to practice, and thereby incur costly public disfavor.



President, Minnesota State Medical Association

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# Editorial

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CARL B. DRAKE, M.D., *Editor*; GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

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## BLUE CROSS AND BLUE SHIELD CONSOLIDATION

AS we go to press, a meeting of the National Blue Cross and National Blue Shield associations, the former composed of the state voluntary prepayment hospital insurance organizations and the latter made up of the state prepayment medical insurance organizations, is about to be held (October 25) at French Lick Springs, Indiana, for the purpose of consolidating the two into a national hospital and medical care insurance organization, to be known as the Blue Cross-Blue Shield Health Service, Inc.

A brochure approved August 20, 1948, by the combined Blue Cross and Blue Shield commissions sets forth the reasons for the amalgamation of the two organizations. The fear that the government will establish a compulsory insurance plan such as that embodied in the oft-proposed Wagner-Murray-Dingell Bill, and the contention that industries operating on a national scale require a national health service, are two of the main reasons given in the brochure for the necessity of the amalgamation. The brochure was sent to the state Blue Cross and Blue Shield organizations, but the various state medical associations had to ask for them in order to know what was in the offing. The meeting was planned without consulting the national or state medical associations as to their approval. As it was through the help, financial and otherwise, of the AMA that the national organization of the Blue Shield state associations was formed, this oversight seems rather inexcusable.

To give a better understanding of the attitude of the physicians of the country to the proposed amalgamation the following events are mentioned.

At a meeting of the presidents of the state medical associations held June 19, action was taken that further study of the proposal to form a national Blue Cross-Blue Shield organization be made by the Council on Medical Service of the AMA and that no such national insurance organization be formed at that time. This recommen-

dation was approved by the AMA House of Delegates shortly thereafter.

On October 2, 1948, after the brochure had appeared, the Council on Medical Services of the AMA unanimously refused to approve the proposed amalgamation, and on the same day the AMA Board of Trustees unanimously endorsed the action of the Council. The state medical associations were notified of the action taken by the Council and the Board of Trustees.

In view of the apparent overwhelming opposition to the proposal on the part of the profession, it scarcely seems possible that the proposal will be carried through on October 25. While the Minnesota Blue Shield plan is separate from the Minnesota State Medical Association, it was brought forth by the State Association, and several councilors of the State Association are on its Board of Directors. This places these Councilors in a delicate position to say the least.

We cannot go into the pros and cons of the proposed consolidation of the associated Blue Cross and Blue Shield organizations. The arguments of the proponents that it is a necessary step to prevent the federal government from establishing a compulsory insurance program does not appeal to us. The proposed Blue Cross-Blue Shield Health Service resembles too closely the proposed governmental plan. Its overhead would be tremendous, and if it went in the red, what an opportunity for the government to step in. Certainly, too, ways could be devised for insuring employees of national industries in individual state Blue Cross and Blue Shield organizations or separate national Blue Cross and Blue Shield associations.

Certainly the unanimous opposition of the members of the Council on Medical Service and the Board of Trustees of the AMA, who doubtless studied the proposition, means much. If the AMA House of Delegates had been given the opportunity to act on the present proposal, it undoubtedly would have voiced its opposition. The meeting of October 25 suggests the enthusiasm



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and premature action of a few in a matter which requires more deliberation.

The Oregon State Medical Association has been following these events with remarkable zeal and has publicized their sequence and taken a firm stand against the amalgamation. According to the latest news a civil suit has been filed by the Federal Department of Justice against the Oregon State Medical Association, the Oregon Physicians Service, eight county medical societies and eight individual doctors, charging them with violation of the Sherman anti-trust act in conspiring to deprive the public of the opportunity to acquire prepaid medical care insurance from other sources. The suit is obviously a test case. On the outcome of the suit the status of the other state Blue Shield organizations will be determined.

### BULLETIN OF THE UNIVERSITY OF MINNESOTA HOSPITALS AND THE MINNESOTA MEDICAL FOUNDATION

EACH member of the Minnesota State Medical Association has been sent a copy of the *Bulletin of the University of Minnesota Hospitals and the Minnesota Medical Foundation*. Membership in the Foundation will automatically bring copies of the *Bulletin*, which is published weekly during the school year and contains full reports of the University Hospital weekly staff conferences, a calendar of events at the medical school and news of special activities in the medical school and among its alumni.

The Minnesota Medical Foundation was established in 1940 and in its eight years of existence has collected more than \$90,000 and disbursed about \$50,000 in the support of worthy projects such as promoting medical education and research, and in assisting worthy students. Annual dues are \$10 and life membership \$100. Requests in larger amounts for specific research projects may also be made. Requests for further information may be addressed to The Minnesota Medical Foundation, 132 Medical Science Building, University of Minnesota, Minneapolis 14. Checks should be made payable to the Minnesota Medical Foundation, and donations are deductible in both federal and state income tax returns.

The Foundation has just established a lectureship at the Medical School as a memorial to the

late Dr. Jennings C. Litzenberg, professor of obstetrics and gynecology for many years, who died August 15, 1948, at the age of seventy-eight. A native of Waubeek, Iowa, Dr. Litzenberg obtained his medical degree at the University of Minnesota in 1899. While still a medical student he became an assistant to Dr. L. J. Cooke, the University's physical training director, which position he held for nine years after his graduation. He then specialized and supplemented his education with studies in Vienna, Berlin, London, Glasgow, and Dublin. He headed the department of obstetrics and gynecology from 1914 until his retirement in 1938 to the status of professor emeritus.

### WANTED: UNKNOWN DIABETICS

PHYSICIANS will be interested in a national broadcast entitled "Wanted: Unknown Diabetics" which will be one of the 1949 winter series of AMA-NBC broadcasts, sponsored by the AMA, entitled "Your Health Today."

It is estimated that there are about 2,400,000 unknown diabetics in the country today and the broadcast is part of a program of publicity planned for National Diabetes Week which will endeavor to call attention to premonitory warnings and early signs of diabetes.

Featured speakers on the AMA program will be Dr. Elliott P. Joslin and Dr. Howard F. Root of Boston; Dr. Charles H. Best of Toronto; Dr. Lester J. Palmer of Seattle, western vice president of The American Diabetes Association. A patient who has successfully coped with diabetes for more than twenty-five years and remains in excellent health will also take part in the program.

Included in the program will be a memorial tribute to Sir Frederick Banting who, with Dr. Best, discovered insulin and made the control of diabetes possible.

The broadcast will be supervised by Dr. W. W. Bauer of the AMA Bureau of Health Education, and Miss Judith C. Waller of NBC.

The appearance of tubercle bacilli in sputum, gastric contents or other body fluids is an extremely significant episode in the course of tuberculous infection. Hence, a thorough and systematic search for tubercle bacilli must be instituted in all cases where the presence of tuberculosis is suspected or where tuberculosis must be considered a possibility in differential diagnosis.—FRANCIS J. WEBER, M.D., *Pub. Health Rep.*, Sept. 3, 1948.

# MEDICAL ECONOMICS

Edited by the Committee on Medical Economics  
of the  
Minnesota State Medical Association  
George Earl, M.D., Chairman

## MR. EWING PUTS HEALTH ON THE ASSEMBLY LINE

Given four billion dollars in tax money, Oscar Ewing, Federal Security administrator, promises to save the lives of 325,000 persons each year, as well as to assure vastly improved standards of health for everyone, "regardless of race, color, creed or income."

His "Ten-Year Program," which he presents as a report to the President, has appeared in published form and only during a political campaign could so many grandiose promises be had for so little (one dollar, sent to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.).

Since Mr. Ewing opens his brochure with the statement that "every year, 325,000 people die whom we have the knowledge and the skills to save," it is well to begin an analysis of his health program at that point. He breaks down this figure into these component parts: communicable diseases, 120,000; cancer and heart disease, 115,000; accidents, 40,000; infant and maternal, 30,000; other, 20,000. The administrator's answer to this problem of what he calls "premature deaths" is, of course, compulsory health insurance.

Just how medical care could prevent accidents from happening, Mr. Ewing does not explain. Nor does he explain what the ambiguous "other" division of 20,000 mortalities includes. Certainly it is a known fact that many infant and maternal deaths result from home environments, the so-called family way of life. Medical practitioners can prescribe proper diets and other requirements for pre-natal care; but the fundamental health needs—adequate housing, good food, proper clothing—fall outside medical jurisdiction. Furthermore, personality and character traits must be taken into consideration in any study of maternal and child mortality and morbidity rates.

Expectant mothers may not have a "will to health." This will to health is reflected elsewhere in the studies of general population groups; for it is to be seen that average expenditures for tobacco, alcoholic beverages and entertainment far exceed the annual outlay for medical care. Families whom Mr. Ewing describes as "medically indigent" may be so only because they have not the will to health; they fail to budget for medical and hospital care. Legislation will not force into a state of healthful living those persons who are not interested in maintaining or restoring their health.

In Mr. Ewing's dream world of 1960 he sees a nation of healthy people; he sees longer life expectancy; he sees research progressing at hitherto unprecedented speeds. The price tag on this Utopia—a 3 per cent tax on all employed or self-employed persons in the United States—he dismisses lightly, for he thinks of this four billion dollars as an investment which will return an estimated 27 billion dollars in one year, this figure representing what Mr. Ewing calls "lost . . . during 1947 in potential production and wages through sickness, partial and total disability."

And how is all this to come about? In Chapter II, Mr. Ewing jousts with the problem of medical manpower shortages and arrives at a three-point answer under the compulsory health insurance plan. Most ominous sounding of the three is his reference to "greater efficiency in diagnosis." Throughout the booklet there is this emphasis on "efficiency"—which leads the reader into a ludicrous visualization of scientists turning out a cancer cure or isolating the polio virus according to a "schedule of operations," or a patient being examined by his physician while a "bureau man" stands by with a stop watch.

And while admitting the shortage of medical practitioners, Mr. Ewing proposes a plan that would burden the already overworked profession

with a mass of bookwork and an ever-increasing case load and which would make further medical recruitment difficult because of the elimination of incentive and the destruction of the idealistic medical code.

If doctors are paid fee-for-service, they must prepare voluminous reports to local, regional or national medical care headquarters, and keep carbon copies of all records in case the doctor must prove in court that he charged the correct amount in a given case, prescribed the *standard* remedies or treatment and treated the patient according to the patient's right under the insurance law.

If doctors are paid stipulated salaries, according to number of patients, location of practice and degree of specialization it must inevitably follow that they will be regimented under a system that will put promotions and salary increases on a political basis, make transfers of practice difficult, perhaps placing the transfers on a promotion-demotion level.

Mr. Ewing scoffs at the logical assumption that there would be a break-down of the doctor-patient relationship under his system. After all, he points out, the patient may choose his physician and the physician may accept or reject patients, or even refrain from participating in the program at all.

This aspect of the problem has been subjected to close scrutiny, both in the light of American medical history and the experiences of physicians in countries which are now and have been under a government medical program similar to the one contemplated by Mr. Ewing. It is agreed, even by Mr. Ewing, that at least the opening years of such a plan would bring a flood of patients queuing their way toward doctors' offices—malingerers and persons with minor ailments, determined to get their "money's worth," would be among them. The patient who now may see the physician of his choice by appointment would, presumably, have to wait if the physician he wished to consult already had a full quota. The same situation might be true of hospital care, for England now under a universal medical care plan has been described as having "hospitals full of patients with ingrown toenails."

If doctors were put on a forty-hour week under this plan, it has been pointed out that the ratio of physician hours to total population would be an average of two hours' time annually for each American. Thus, summary treatment of a

large number of patients would be unavoidable; the doctor would simply not have time for a thorough examination and diagnosis of every patient.

The charge has been directed at Mr. Ewing that medicine would become a "political football." He refutes the charge, saying that physicians would maintain their professional freedom. But consider the pressure from taxpayers: with the cost of medical care mounting, as it would, taxpayers would insist that cheaper drugs and medicines be administered. Combinations of drugs probably would be questioned; new and expensive developments by pharmaceutical houses would be regarded with suspicion by the lay public. Research would suffer from the vagaries of governmental appropriations.

Mr. Ewing has sketched a very attractive design for national welfare but as an architect for health he is a failure, for his blueprint requires a material that few physicians would care to use—socialization.

#### BROOKINGS REPORT SHOWS FLAWS IN HEALTH PLAN

In May, 1947, Senator H. Alexander Smith, chairman of the subcommittee on Health of the Senate Committee on Labor and Public Welfare, asked the Brookings Institution, widely known as a scholarly, unbiased research organization, to investigate and report on the question of compulsory health insurance.

The resultant 267 pages of carefully prepared facts, figures and analyses are heartening indeed to the medical profession, for this documented study concludes that compulsory health insurance is not the way to improve the nation's health.

"It is apparent that the United States under its voluntary system of medical care has made greater progress in the application of medical and sanitary science than any other country," the report states. "This progress is now reflected in low mortality and morbidity rates of infectious diseases and in increased life expectancy. There is every reason to believe that these trends will continue unabated under our present system of medical care."

The authors of the report go on to call attention to the fact that, in many instances, further curtailment of mortality and morbidity rates must await developments in medical science.

They cite the excellent health record already

## MEDICAL ECONOMICS

achieved by the United States, declaring by means of statistics, "Probably no great nation in the world has among its white population better health than prevails in the United States." Amplifying this statement, with regard to the non-white population in this country, Mr. Bachman and Mr. Meriam say, "The nonwhites in the United States have materially poorer health than the whites, but the evidence does not indicate that this condition is primarily or even mainly due to inadequacy of medical care."

Proponents of compulsory health insurance seized on the rejection figures of World War II Selective Service boards as evidence that the health of the nation was reaching new lows and, without government intervention, would continue to grow worse. The Brookings report reinforces the position taken by Dr. Maurice H. Friedman (*Reader's Digest*) and the *Nation's Business* in its articles on the matter of Selective Service statistics as a criterion for judging the nation's state of health.

In the first place, these figures were not compiled as a health report. They include rejections for physical reasons, yes, but often these physical reasons were: failure to conform to height and weight standards, loss of fingers, toes, hands and other members, which certainly could not be attributed to lack of medical care. The standards were not in any sense scientific health standards, but were set up to screen out those men who, though perhaps able to carry on normal civilian activities, would not be capable of enduring the extraordinary strains and stresses of warfare. Often, as standards were lowered during the course of the war, rejectees would be recalled for further examination; thus it was that one person could be rejected as many as five times and each rejection would be counted separately in the grand total. Furthermore, the rejection could be for educational limitations or on moral grounds.

Having called the state of the nation's health good and having compared it satisfactorily with other nations of the world, the Brookings experts examine the proposals for compulsory health insurance.

They find it would necessitate a high degree of governmental regulation and control; they look for a topheavy organization of administrators, auditors, examiners, investigators and the like

which, added to the increased case loads and the tendency of some practitioners to use the system for their own financial advantage, would cause the cost of the plan to spiral far beyond the rather staggering estimates made by compulsory health plan sponsors.

Although they sift through every phase of the plan, the impartial Brookings researchers are unable to find any advantages in introducing the program.

### **PUBLIC HEALTH CONFERENCE HAS SECOND ANNUAL MEETING**

Health officers, physicians, nurses, health education workers, sanitary engineers and others whose work relates to public health attended the second annual meeting of the Minnesota Public Health Conference, October 8, at the Saint Paul hotel.

Focal point of the day's program was the discussion of proposed legislation which would enable a county or several counties, united, to establish a local health unit, staffed by a health officer, a public health engineer, a supervising nurse, and additional professional and clerical people according to the size and needs of the area served.

The group was divided according to professional interests for the luncheon meetings, with a general session on local health departments in the afternoon. Katharine F. Lenroot, chief of the United States Children's bureau, addressed the banquet session on the subject of maternal and child health care.

### **FIFTY PER CENT OF INDUSTRIAL WORKERS PROTECTED AGAINST WAGE LOSS**

In a study of 1,150,000 establishments, in industries covered by unemployment compensation, the Research Council for Economic Security found that about 50 per cent of the employees enjoy some degree of protection against wage loss during illness. A total of 30,000,000 workers was tallied for the study.

The Council states in its report, "In every state, with or without compulsory legislation, employers realize the need to protect their workers against wage loss during disability, and have extended such protection on a voluntary basis."



# MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

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## Minneapolis Masseuse Pleads Guilty to Violating Basic Science Law

*Re. State of Minnesota vs. Joanne Eugena Swanson*

On October 8, 1948, Joanne Eugena Swanson, fifty-six years of age, 1615 Thomas Place North, Minneapolis, entered a plea of guilty in the District Court of Hennepin County, to an information charging her with the crime of practicing healing in violation of the Minnesota Basic Science Law. The defendant was sentenced by the Hon. Paul S. Carroll, Judge of the District Court, to ninety days in the Minneapolis Women's Detention Home. The sentence was stayed for three years, on condition that the defendant refrain, in every manner, from practicing healing illegally.

Mrs. Swanson was arrested on July 14, 1948, by Minneapolis police officers in Room 305 at 608 Nicollet Avenue, Minneapolis, where the defendant was operating a so-called bath and massage parlor without a massage license. Subsequent investigation by the Police Department and representatives of the Minnesota State Board of Medical Examiners disclosed that the defendant was treating patients for arthritis, sinus trouble and other ailments and was charging \$25.00 for a series of treatments. The defendant was arraigned in the Minneapolis Municipal Court on July 16, at which time she waived a preliminary hearing and was held to the District Court under cash bail of \$1,000, which was furnished. The defendant was arraigned in the District Court on July 19, at which time she entered a plea of not guilty. Her case was set for trial for September 13.

The defendant holds no license to practice any form of healing in the State of Minnesota, but claims to be the possessor of a diploma in massage from a Chicago massage school. The school, however, is not recognized by the Minnesota State Board of Medical Examiners, and therefore, the defendant cannot qualify for a massage license in Minnesota. Mrs. Swanson was so advised in 1943 by the Minnesota State Board of Medical Examiners. Judge Carroll warned the defendant that if she violated the Basic Science Law in any manner in the future, that she would be required to serve her sentence.

## Two Minneapolis Women Sentenced for Criminal Abortion

*Re. State of Minnesota vs. Claretta Carstenbrock,  
Blanche Bougetz and George W. Rastede*

On October 5, 1948, Claretta Carstenbrock, thirty-nine years of age, residing in rural Hennepin County, was sentenced to a term of one year in the Minneapolis Women's Detention Home by the Hon. Levi M. Hall, Judge of the District Court of Hennepin County. The defendant Carstenbrock had entered a plea of guilty on July 7, 1948, to an information charging her with the crime of abortion. The sentence was stayed and the defendant placed on probation for one year, the Court stating that the only reason the defendant was receiving probation was because she had a good record prior to her arrest in the present case. The defendant Carstenbrock has no medical training whatsoever but had been employed for eighteen years as hostess by a country club.

On the same date, October 5, 1948, Blanche Bougetz, forty years of age, 4544 Lyndale Avenue South, Minneapolis, was sentenced by the Hon. Paul S. Carroll, Judge

of the District Court of Hennepin County, to a term of not to exceed eight years in the Women's Reformatory at Shakopee. The defendant Bougetz had entered a plea of guilty on July 21, 1948, to an information charging her with the crime of abortion. Judge Carroll stayed the sentence and placed the defendant on probation for six years. Judge Carroll told the defendant that she was being placed on probation solely because of the condition of her health. Mrs. Bougetz weighs over 400 pounds, and a medical examination prior to sentence being imposed, disclosed that she is in poor health. However, Judge Carroll told Mrs. Bougetz that if she is involved in any more violations of the law, she will be sent to the Women's Reformatory, even if it means that she will die in the institution.

The defendants Carstenbrock and Bougetz were arrested in June, 1948, along with the defendant George W. Rastede, a Hudson osteopath, following an abortion on April 25, 1948, on a twenty-two-year-old LaCrosse woman. The patient was referred to the defendant Bougetz by the defendant Rastede, and the abortion was performed by the defendant Carstenbrock at the home of Mrs. Bougetz. The sum of \$300 was paid for the abortion, and the money was equally divided among the three defendants. The defendant Carstenbrock has no prior conviction, but the defendant Bougetz was convicted of abortion in the District Court of Hennepin County on September 6, 1946, at which time she received a suspended sentence of one year in the Minneapolis Women's Detention Home. She also has a previous conviction in 1932 for the crime of forgery in the second degree. For that offense the defendant Bougetz served three and a half years in the Women's Reformatory at Shakopee.

The defendant Rastede entered a plea of guilty on September 21, 1948, to an information charging him with the crime of abortion in the same case as the defendants Carstenbrock and Bougetz. The Court set October 18 as the date for imposition of sentence in Rastede's case. The defendant Rastede also entered a plea of guilty on October 5, 1948, to a second charge of criminal abortion in which he is named with one Michael J. Koehler. The Court set October 18 as the date for sentencing Rastede.

## Wisconsin Osteopath Ordered to Surrender License by Minneapolis Judge

*Re. State of Minnesota vs. Claretta Carstenbrock,  
Blanche Bougetz and George W. Rastede.*

*Re. State of Minnesota vs. Michael J. Koehler and  
George W. Rastede.*

On October 18, 1948, George W. Rastede, fifty-eight years of age, of Hudson, Wisconsin, was sentenced by the Hon. D. E. LaBelle, Judge of the District Court of Hennepin County, to two separate sentences of not to exceed four years each, on two charges of criminal abortion. Rastede, licensed as an osteopath under the laws of Wisconsin, upon recommendation of legal counsel for the Minnesota State Board of Medical Examiners, was given his choice by the Court of serving four years in the State Prison at Stillwater, or surrendering his osteopathic license for cancellation by the Circuit Court of St. Croix County, Wisconsin. Rastede chose to surrender his license for cancellation rather than serve the prison sentence. Judge LaBelle further deprived Rastede of the right to own or operate a hospital or engage in the practice of healing in any manner, directly or indirectly, while he is on probation.

Rastede told the Court that he was born in Dodge County, Nebraska, and that he was a graduate of the Des Moines Still College of Osteopathy. He stated that he had been practicing for the past ten years at Hudson. Rastede admitted that he had been referring pregnant women to his co-defendants, Claretta Carstenbrock,

Blanche Bougetz and Michael J. Koehler for the purpose of having criminal abortions performed. Rastede also admitted that he had shared in the money paid for such abortions. Rastede was arrested in the first case on June 8, 1948, by Inspector Bernath of the Minneapolis Police Department on a warrant charging him with the crime of abortion in connection with a twenty-two-year-old LaCrosse, Wisconsin, girl who was aborted by the defendant, Claretta Carstenbrock, at the home of the defendant, Blanche Bougetz, in Minneapolis. The sum of \$300 was paid in that case, the money being split three ways between the defendants, Carstenbrock, Bougetz and Rastede. Rastede was released on \$5,000 cash bail in that case, and while out on bail, sent a twenty-two-year-old Chippewa Falls, Wisconsin, girl to the defendant, Michael J. Koehler, for a criminal abortion. Rastede was arrested in that case on August 25, 1948, and his bail increased to \$12,500 which was furnished. Subsequently, on September 21, 1948, Rastede entered a plea of guilty to the first charge against him, and on October 5, 1948, entered a plea of guilty to the second charge against him. The cases against the other co-defendants have been disposed of.

The defendant, Rastede, had a previous encounter with the law in Wisconsin, where, on October 14, 1946, a complaint was filed in the County Court at Hudson, charging Rastede with attempting to produce a miscarriage. In that case a twenty-year-old Winona, Minnesota, girl stated that she paid Rastede \$100 for an abortion. The patient became ill and was hospitalized at Hastings, Minnesota. On January 9, 1947, Rastede was acquitted of the charge by a jury at Hudson.

#### Former Chiropractor Sentenced to Jail for Criminal Abortion

*Re. State of Minnesota vs. Michael J. Koehler and  
George W. Rastede*

On October 13, 1948, Michael J. Koehler, fifty-one years of age, 1101 W. 28th Street, Minneapolis, was sentenced by the Hon. Earl J. Lyons, Judge of the District Court of Hennepin County, to a term of not to exceed eight years in the State Prison at Stillwater, for the crime of abortion. The Court stayed the sentence and placed the defendant, Koehler, on probation for eight years, provided, however, that the first year of the sentence must be served by Koehler in the Minneapolis Workhouse.

The defendant Koehler was arrested on August 21, 1948, by Minneapolis police officers following an abortion performed by the defendant Koehler on a twenty-two-year-old Chippewa Falls, Wisconsin, nurse. The nurse had been referred to the defendant Koehler by George W. Rastede, an osteopath at Hudson, Wisconsin. Koehler was paid \$350 for the abortion. Upon being first arraigned in Court, Koehler entered a plea of not guilty, but subsequently, on September 1, 1948, Koehler withdrew his plea of not guilty and entered a plea of guilty. Koehler has two previous convictions for criminal offenses. On May 24, 1939, Koehler pleaded guilty in the District Court of Hennepin County to an information charging him with having in his possession instruments, articles and medicine for the causing of unlawful abortions. For that offense Koehler paid a fine of \$150 and received a one-year suspended workhouse sentence. At that time Koehler held a license to practice chiropractic in the State of Minnesota. Subsequently Koehler was arrested on a charge of criminal abortion resulting in Koehler pleading guilty on July 6, 1944, in the District Court of Hennepin County to an information charging him with that crime. For that offense Koehler was sentenced to one year in the Minneapolis Workhouse. Koehler served 42 days in the Workhouse and then was released because of alleged ill health. Koehler had stated to the Court

that it was necessary for him to go to a different climate to safeguard his health. Upon being released it was learned that Koehler had offered to perform another abortion. The matter was called to the attention of the Court and the Court made an order revoking Koehler's release from the Workhouse. Upon being returned to the Workhouse, Koehler was incarcerated until February 17, 1945, at which time he was released to go to California to live with a daughter. Koehler returned to the State of Minnesota in 1947. Koehler's chiropractic license was revoked on September 6, 1944.

At the time Koehler was sentenced by Judge Lyons on October 13, 1948, the defendant Rastede, likewise, had entered a plea of guilty but had not been sentenced.

Adult types of pulmonary tuberculosis have shown an alarming incidence among children of school age in all of the war-torn countries; tuberculosis of bone and joints has increased many times; miliary tuberculosis and tuberculous meningitis in children are now common. In every children's hospital I visited I saw ward after ward of the victims of tuberculosis. In one small country, not atypical of others, I learned that to take care of the known cases of bone tuberculosis alone among children 7,000 new hospital or sanatorium beds were needed. They had only 500 when I was there.—  
MARTHA M. ELIOT, M.D., Am. J. Pub. Health, January, 1948.

#### Early Acute Benign Syphilitic Hepatitis With Jaundice

(Continued from Page 1221)

ant symptoms can be eliminated. Bismuth also can produce the above reactions, so it would be well to use a soluble bismuth preparation early in the treatment, because of its more rapid elimination from the body.

#### Summary

A case of acute early benign syphilitic hepatitis with jaundice is presented. The most satisfactory treatment probably is bismuth combined with penicillin. It seems best to use a soluble bismuth preparation early in the treatment because of its more rapid elimination from the body. Later, if desired, this can be changed to bismuth subsalicylate in oil. If the above method of treatment is employed, a Herxheimer reaction and other troublesome symptoms can be avoided or minimized by daily observation of the icterus index. The modern use of liver biopsy will enable workers to study pathologic changes of the liver in this disease.

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# Minnesota Academy of Medicine

Meeting of May 12, 1948

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, May 12, 1948. Dinner was served at 7 o'clock, and the meeting was called to order at 8:20 p.m. by the President, Dr. T. A. Peppard.

There were fifty-nine members present.

Minutes of the April meeting were read and approved.

Dr. Ohage read the following memorial to Dr. Alexander Colvin, and a motion was carried that this be published in the Proceedings of the Academy and a copy sent to the widow.

## ALEXANDER R. COLVIN

1867-1948

Dr. Alexander R. Colvin was born in Leeswater, Ontario, Canada, February 28, 1867. He received his preliminary education in the Leeswater high school. He then studied pharmacy and, after his graduation, settled in Lethbridge, Alberta, Canada. Here he met a Dr. Newburn who induced him to study medicine. He then entered medical school at McGill University at Montreal, Canada, from where he was graduated in 1894. Following his graduation, he spent two years in the Royal Victoria Hospital as an intern and surgical resident.

Upon completion of his residency, he came to La Crosse, Wisconsin, to take over the practice of Dr. Evans while the latter was studying abroad. It was at this time he decided to locate in Saint Paul. The same year, on June 1, 1897, he was married to Miss Sara Tarleton.

In 1902, Dr. Colvin, accompanied by his wife, went to study in Germany and Austria. He received his post-graduate work at Breslau, Germany, where he studied under the famous Mikulicz, and also in Vienna.

He returned to Saint Paul and became associated with Dr. Charles Wheaton and later with Dr. John Rogers and Dr. Warren A. Dennis, with whom he practiced for many years. He retired in 1948, after fifty-two years of continuous practice.

Dr. Colvin was commissioned a major in the medical corps during the first World War, the highest rank in the medical reserve corps at that time.

Following the war, in 1919, Dr. Colvin was named chief of the surgical staff of the Ancker Hospital, a position he held until the time of his death. He was also a clinical professor of surgery at the University of Minnesota.

He owned and operated the first x-ray machine in Saint Paul.

On January 19, 1948, Dr. Colvin was honored by the members of the surgical staff of the Ancker Hospital and other friends of the profession at a banquet held at the Minnesota Club. This was the last occasion

on which Dr. Colvin had an opportunity to meet his many friends and admirers.

Dr. Colvin was a member of the American Academy of Orthopedic Surgeons, the Minnesota Academy of Medicine, American Medical Association, Western Surgical Association, American College of Surgeons, Saint Paul Surgical Society, Ramsey County Medical Society, and The Minnesota State Medical Association, and American Medical Association.

Dr. Colvin was an ardent student of medicine. He was an exhaustive reader and familiar with the English publications on surgery and also the available German surgical literature.

He died on March 22, 1948, at his residence, 1175 Davern Avenue, Saint Paul, Minnesota. He is survived by his wife, Mrs. Sara Colvin, and a niece, Miss Ada I. McKinnon.

## The Committee

HARRY B. ZIMMERMAN, M.D.

E. MENDELSSOHN JONES, M.D.

JUSTUS OHAGE, M.D.

The scientific program followed.

## A RARE COMPLICATION OF INTESTINAL INTUBATION

OSWALD S. WYATT, M.D.

Minneapolis, Minnesota

Dr. Wyatt's case report was published in the September, 1948, issue of MINNESOTA MEDICINE (page 1022) in the proceedings of the Minneapolis Surgical Society for April 1, 1948.

## Discussion

DR. CHARLES E. REA (Saint Paul): The case presented by Dr. Wyatt is very similar to one that was seen at Ancker Hospital about two years ago.

M. L., aged thirteen, was admitted to Ancker Hospital on June 26, 1946. One week before admission she became sick with pain in the abdomen, nausea, vomiting, and fever. On admission to the hospital, she had definite physical findings of a ruptured appendix with generalized peritonitis. A localized mass in the right lower quadrant was drained through a small McBurney incision under local anesthesia on June 27, 1948. Culture of the pus showed *Streptococcus viridens* and *B. proteus*. She was treated by means of sulfadiazine, penicillin, streptomycin, blood transfusions, and inhalation oxygen therapy. A Miller-Abbott tube was inserted at the time of admission, and its progress into the ileum followed by roentgenograms. An adequate fluid balance was maintained by intravenous fluids.

From June 27, 1946, until July 3, 1946, she had moderate abdominal distention, and profuse drainage from the incision in the right lower quadrant. At the latter date, Varco feedings were ordered to be given through the Miller-Abbott tube. The student nurse gave the feeding through the "balloon" side of the tube and remarked to the surgical resident that she could not get much of the feeding through the tube. Attempts

to aspirate the solution were unsuccessful. Roentgenograms of the abdomen showed the balloon full of fluid. The tube could not be pulled out. The patient's condition generally became worse. The tube was cut across in the hope that it would pass through the patient, but it did not move. Attempts were made to aspirate and remove the balloon and tube at laparotomies but were unsuccessful due to the patient's poor condition. She died on her thirty-eighth hospital day.

At postmortem there was a generalized purulent peritonitis. The balloon was in the ileum about 2 feet from the ligament of Treitz. It was filled with sour curdled milk. There was no gangrene of the bowel. There was a generalized paralytic ileus.

This complication following the use of a Miller-Abbott tube can be entirely prevented by care in injecting fluids through the right openings. Since the above episode, the surgical resident has been made responsible for the care of the Miller-Abbott tube. On occasion, one can have enough trouble getting the Miller-Abbott tube to work properly without adding a complication.

## ADOLESCENT RESENTMENT OF AUTHORITY

EDWARD DYER ANDERSON, M.D.

Minneapolis, Minnesota

It has often been said that adolescence, death and taxes cannot be escaped. This is true, but, under normal conditions, adolescence differs from death and taxes in that it should be welcomed rather than dreaded. Certainly no other period of life can be more full of interest, pleasure and experience. And equally there is no period which can give the parents, the teacher or the physician more interest and satisfaction.

So much has been written and said in recent years regarding the difficulties that can arise in the adolescent period, that many people, including physicians, tend to expect serious trouble and feel that it is bound to be a time of great trial and tribulation for all concerned. Although it is true, even in the normal youngster, that there are occasions which are disturbing and troublesome, usually these are episodes which are not lasting nor serious. During normal infancy and childhood occasions arise which are not pleasant for either the child or the parents, but they do not make us forget the wonderful, pleasant and interesting parts of these periods of growth. The same applies to adolescence, which is also a period of physical and emotional development. Regardless of the occasional disturbing episodes which occur, it is usually a normal, pleasant and interesting part of life. It is extremely important that we physicians do everything in our power to help young people, parents, teachers, social workers, nurses and everyone dealing with this age group to recognize and understand the normalcy of adolescence. We can best do this by helping all concerned to have an understanding of the normal physical and emotional changes that take place.

This paper is written with the hope that it may be of some help in better understanding and interpreting adolescent resentment of authority which is so often confusing and disturbing to adolescents and their parents. Unless understood, it can cause a tremendous amount of misunderstanding, friction and unhappiness.

Inaugural thesis.

On the other hand, if the subject is wisely handled by parents and others in authority, the normal adolescent will have no serious or permanent difficulty.

This increasing and, at times, overwhelming resentment of authority, even though normal, is sometimes called adolescent revolt. I believe this latter term should be confined to those instances in which the adolescent has gotten completely out of hand for one reason or another and has revolted. One can expect fairly frequent evidences of resentment of authority in the youngster who is emotionally healthy, but not actual revolt. If the emotional growth and development of the youngster has been normal before adolescence and if the parents are understanding and wise during this critical period, abnormal resentment and revolt will not occur.

Adolescent resentment of authority differs from the normal dislike all of us have of being directed or crossed in our desires by someone who has authority and control over us. This adolescent resentment is beyond that which one would normally expect, and often occurs when perfectly reasonable requests are made. There is no logical reason for some of the extreme feelings of resentment and hostility which occur when the parents direct, mildly criticize, or disagree with the ideas of their adolescent child. Another characteristic which is confusing to both the child and the parents is the fact that what may cause no resentment one time may cause an extreme disturbance at another.

There are probably several reasons for this increasing and apparently unreasonable resentment of authority during adolescence. It is believed by some that it is an inherent phase of growth and development which is part of our heritage. Another factor in bringing about this resentment is that when they reach this age they have matured enough to recognize that those in authority, and this applies particularly to their parents, are not perfect and they are disillusioned. Up until this time they have tended to accept without question that the parents were always wise and completely competent to direct all situations. They now realize they do have faults and imperfections and resent the fact that they have been wrong in their judgment. Also because of the confusion, anxiety and uncertainty that often develops because of the marked physical and physiological changes taking place, the adolescent may have feelings of resentment which they cannot explain and which become focused upon the parents. We are all prone to blame things which are unpleasant but unexplained, upon those upon whom we are dependent and who usually protect and shield us from such conditions, and the adolescent is no exception. Whatever the reasons for the increased resentment of authority may be, the fact remains that it is an almost universal development and serves a definitely useful purpose under normal conditions. In a persistent, compelling way it calls to the attention of the parents the necessity of their children's breaking away from parental care and management, so they may learn to stand upon their own feet and eventually be able to manage and direct their own lives. If it were not for this increasing desire for independence with resulting resentment of authority, most parents would continue indefinitely to guide, direct



and make all decisions for their children. The result would be that when the young man or woman reached the chronological and physical age of maturity, he or she would be emotionally immature and inadequate and would flounder helplessly when put upon his or her own resources. We see frequent examples of this in adults who were overprotected and never allowed to mature and become independent, with resulting inability to be happy or successful in their marital, social or business life. Adolescent resentment of authority is one of the principal reasons that there are not more such tragedies.

The symptoms of normal adolescent resentment of authority differ with different individuals, but usually the first of these to appear is a strong, unexplainable feeling of resentment toward the parents when an apparently reasonable request is made. Things which they have previously done and accepted without any question or resentment, are obeyed, but with bad grace and an air of grievance. These feelings of resentment and the resulting flare-ups tend to become more and more frequent and intense and, before long, the adolescent begins to speak his mind and register firm objections to advice from or direction by the parents. It should be noted that in most youngsters this resentment is almost entirely directed towards the mother and father, and not to others in authority. Although there may be considerable talk against the authority of the teacher, the principal or the coach, in most instances the adolescent actually feels or shows little resentment towards them. Because parents largely represent authority to the adolescent, they bear the brunt of this growing resentment. This shows itself in many other indirect ways. The adolescent often begins to be ashamed of how his father and mother dress and look. He may become ashamed of their manners and friends, and frequently of his father's jokes, and will cringe both inwardly and outwardly when one is told in the presence of his own friends. All of this regardless of the fact that the parents do dress in perfect taste, have excellent manners and wonderful friends and even the father is a superb storyteller. During this period the adolescent boy or girl begins to disagree with the religious, ethical and political ideas of his or her parents. It is useless to discuss their ideas with them, as they are unable to enter into a discussion except upon an emotional plane and they become markedly upset if one does not agree with their viewpoint. All of this might sound as if adolescent resentment of authority leads to a pretty grim and unhappy time for both the parents and the youngster. Under normal circumstances, this is not so. In the first place, these periods of resentment are usually of short duration. Secondly, if the adolescent is wisely handed, as he gets nearer and nearer to adulthood, he more and more realizes that his parents are not complete social and intellectual failures, and actually begins to like and respect them. As a matter of fact, the normal adolescent feels this way towards his parents most of the time and it is only occasionally that he is disturbed and resentful. Although all the symptoms mentioned may occur on occasion, the relationship between the normal adolescent and his par-

ents is a happy, friendly and relaxed one most of the time.

Although most adolescents have no serious trouble with resentment of authority, unfortunately there are some who do. Although this paper is primarily upon normal resentment of authority, I do wish to discuss briefly adolescent revolt which is sometimes seen. The abnormal symptoms may be varied, but the most common is open defiance toward the parents. This may take the form of defiant, belligerent or even profane speech. There may be complete disobedience and in extreme cases the disturbed youngster may physically attack the parents when crossed, corrected or denied what he wants. The parents may lose all control, and a state of anarchy results. A boy or girl in a state of revolt is usually restless, sullen and unhappy a great deal of the time. A frequent symptom of abnormal revolt is the projection of feelings of hostility and defiance beyond the parents to the authority of the school and even the law. The youngster begins to be a disturbing element in school, with refusal to do the required work, defiance of the teachers, truancy and general trouble-making. When the resentment extends to the authority of the law, the adolescent may become delinquent.

It should be noted at this time that many normal adolescents go through a varying period during which their school work suffers. Most of these youngsters do not know why their work slumps and are mildly disturbed about it and welcome help in the matter. In most instances it is the result of the general mild disturbance and confusion brought about by the increased need for recognition and acceptance, and the new problems and conflicts resulting from the increased sex urge and interest. Also, the interests of the adolescent suddenly widen and increase, and school work may temporarily suffer.

The adolescent who fails in school because of abnormal revolt, differs from the normal youngster who has scholastic difficulties at this time by taking a belligerent attitude about the whole affair. He tends to glory in his failures, blame his teachers for his difficulties and more or less defies the parents and school to help him or do anything about it. Also, his poor work in school tends to continue indefinitely, while that of the normal adolescent is usually of comparatively short duration.

Frequently the adolescent who has abnormal feelings of resentment and revolt finds it difficult to get along with his friends and contemporaries. He has numerous arguments and disagreements and often seeks new friends among those who are also disgruntled, unhappy and emotionally disturbed.

There are some adolescents who react abnormally to feelings of resentment of authority by becoming shy and withdrawn. They never assert themselves or argue when corrected or denied what they want. They show no outward evidence of resentment and seem perfectly willing to be completely dependent upon and dominated by their parents. They tend to stay by themselves, to have few friends, and parents, teachers and schoolmates find it extremely difficult, if not impossible, to establish any close relationship with them. They are

very unhappy and are seriously emotionally ill youngsters. They and their parents are badly in need of help.

There are many causes for the development of abnormal and unhealthy reactions to adolescent resentment of authority. We can assume that an adolescent showing abnormal signs of resentment and revolt was either extremely unstable and disturbed when he reached this age, or the parents were unwise in their management during this period, or both. In most instances, both factors are involved, as parents who manage their children improperly and unwisely before adolescence, with resulting emotional insecurity and instability, usually continue to do so when this age is reached. It is certainly true that a child who is emotionally disturbed or ill when he reaches the adolescent age is almost bound to have an overaccentuation of all normal adolescent problems and this is particularly true of resentment of authority. Such children almost invariably show symptoms of abnormal resentment and revolt. There are obviously many conditions and factors that can cause the fundamental emotional disturbance.

The child who has been overprotected and spoiled is almost sure to have trouble. This is also true of children whose parents are too perfectionistic, demanding or strict.

If one or both parents have consciously or unconsciously rejected their child, a real storm is almost bound to occur when adolescent resentment of authority develops. We know that children unconsciously recognize the fact that they are rejected, and it accentuates their resentment of the authority of the parents. Here we have a personal resentment added to that directed against authority itself.

If one or both parents are delinquent, the adolescent often has difficulty with revolt because of feelings of resentment, shame, lack of respect and motivation. Adolescents who have grown up in a home where there is unhappiness and friction between the parents or which has been broken because of divorce, are particularly prone to develop trouble with resentment of authority. This may also be true when a stepfather or stepmother comes into a family which was previously broken because of death or divorce.

Adolescents who have been frustrated and thwarted during childhood because of a physical or mental handicap frequently have serious difficulty in properly handling resentment of authority. Many mentally handicapped adolescent delinquents come under this category.

There are numerous other causes for emotional insecurity and instability which time will not allow us to enumerate or discuss. However, I wish to emphasize again that whatever the cause, a youngster who is emotionally disturbed when he reaches adolescence is very likely to have difficulty with otherwise normal changes which come at this age. This is particularly true of adolescent resentment of authority. Unwise management of this resentment can lead to disaster in the emotionally stable and healthy youngster, and it is sure to do so in those who are emotionally ill. In cases where the disturbance is severe and of long standing, special psychiatric diagnosis and treatment may be necessary. However, these cases are the exception.

The great bulk of preventive mental hygiene and treatment which is so greatly needed can best be done by physicians coming in contact with the adolescent and his parents in the course of regular practice. The understanding and relationship between the majority of parents and their adolescent children is excellent and, in most instances, all that is required is for the physician to give information, support and encouragement. Other adolescents and their parents may need a great deal of instruction and advice regarding the normal reactions and developments of this age so they may understand and meet situations as they arise. Some adolescents present symptoms which indicate abnormal reactions, and physicians can often prevent serious and permanent damage by early recognition of danger signals and the giving of proper counsel and help to correct the underlying cause.

If a few general principles are followed in handling the adolescent and his feelings of resentment toward those in authority, many difficulties that may otherwise develop will be prevented and some of the more seriously disturbed youngsters may be helped.

First, parents should not consider or take the resentment and consequent behavior of the adolescent as a personal affront. This is one of the most frequent mistakes made, as parents often do not realize that their youngster is resenting authority itself and not themselves as individuals. The parents represent authority and therefore will have to bear the brunt of the resentment. They should remember that if someone else had been the parents of their adolescent children they also would have been the object of this same resentment. It is hard not to become hurt and angry when children say and do things which seem so unreasonable, ungrateful and unjust; but if parents can avoid taking it personally, they will save themselves and their children a great deal of unhappiness and heartache. By attempting to treat the whole situation impersonally, the relationship will be kept from becoming a personal fight. Both parents and the child too frequently lose all sense of proportion and say and do things which certainly do not help the situation.

Secondly, parents must keep their sense of humor. Many of the things the adolescent does and says are funny. It may be hard to appreciate the humor at the time, but if parents do not take things too seriously, many a tense situation can be relieved and things will go more smoothly. Obviously, a sense of humor cannot prevent or solve all problems of adolescence, including that of resentment of authority, but it certainly can help a lot.

Thirdly, parents should learn to avoid unnecessary issues between themselves and their adolescent child, and learn to *meet those which are necessary*. This is one of the hardest things for parents to learn. They tend to make one of two mistakes, or both. They either are too rigid and severe, or, because of dislike and fear of an argument or an unpleasant scene, are too lenient and allow their youngsters to do and say things which they should not. Some parents do what is even worse, namely, go from one extreme to the other, with resulting confusion and bewilderment to the child. Another mistake is frequently made when the adolescent begins

to indicate his desire to be independent and shows resentment of authority. The parents either become resentful and angry, or become panicky and fearful that their child is showing evidences of incorrigibility and delinquency. In either case, they fail to recognize the normalcy of this resentment and become more punishing, nagging, and restricting in their attitude, instead of allowing more liberty, responsibility and freedom. This causes the adolescent to become more and more resentful and he then tends to revolt against what he considers unjust treatment. The parents in turn become more strict and a vicious circle is established. Unless the parents can be helped to break the circle, the adolescent's resentment can become so great and uncontrollable that real revolt develops. Unless it is broken, there is also the danger that this resentment will not only be directed against the parents, but may project out to include resentment against the authority of the school and, in extreme cases, to that of the law, with resulting behavior problems and failure in school or actual delinquency. Also, as pointed out before, in some adolescents, due to inherent sensitiveness and underlying severe emotional disturbance, an even more serious complex may result from this increasing restriction by the parents. The normal and healthy desire to break away and become independent may be crushed, and a withdrawn, shy, unhappy and inadequate person may be the result.

This tendency on the part of parents to increase, rather than decrease, control and restrictions is a common and easy mistake to make. It is hard for most fathers and mothers to realize that the normal adolescent is capable of assuming a great deal of responsibility and of properly making most decisions for himself. Sometimes the decision may not be that which the parents would choose, and at times it may not be the wisest one; but, if the issue is not too important, no real harm has been done, and the youngster has had the satisfaction as well as the experience of making a decision for himself. When adolescents are allowed, insofar as possible, to make decisions for themselves, feelings of resentment which would otherwise develop are avoided. They particularly resent authority which they feel is unnecessary and unjust. It is surprising how frequently they correctly sense the difference between necessary and unnecessary parental interference.

By avoiding unnecessary issues, many feelings of guilt which would otherwise develop can be prevented. When an adolescent develops feelings of resentment toward his parents, he is very likely to think, say or do things which cause both conscious and unconscious guilt. There is not time to discuss in this paper the effect of guilt upon emotional security, but enough has been written and said about it in recent years to make it evident to all that it should be avoided whenever possible.

When parents consciously watch themselves, it is surprising to most of them to see how frequently they make issues of nonessential things and how often they correct, direct or discipline their adolescent children when it is really not necessary to do so. As a matter of fact, the same is true of children of all ages. In most instances, the issue could be avoided and the decision left up to the youngster. Certainly, in most normal

adolescents such things as manners, dress, eating habits, companions, constant reporting as to where they are, time to go to bed, number of times to bathe and wash, and many other questions, can be left up to the youngster and it is surprising how well they handle the situation. The average normal adolescent is capable of taking care of most issues and decisions that arise in his daily life, and we physicians must help parents to see the wisdom and necessity of giving their children the opportunity to do so. It should be emphasized again that the decisions may not always coincide with what the parents would like themselves, but the good resulting from the avoidance of nonessential issues far outweighs the effects of an occasional mistake in judgment on important matters.

Important as it is that nonessential issues be avoided, it is equally important that those which are essential shall be met surely and firmly when they arise. It is sometimes difficult to know whether an issue is essential or nonessential, but the proper decision can usually be made if parents are objective in their approach to the question. Although the adolescent can decide adequately for himself in most instances, he is not capable of wisely making all decisions. He knows this himself, though he is usually the last to admit it. The ego of the adolescent is not strong enough to stand without occasional support. If parents do not step in when necessary, and firmly and wisely make a decision, the adolescent will be uncertain, insecure, and unhappy. Feelings of guilt, anxiety and uncertainty will develop unless he knows that his parents will keep him from doing things which he himself recognizes as wrong, but which he may do if not prevented. There are times when parents must take a definite and firm stand regardless of whether the youngster can understand it or not and regardless of whether he will feel unhappy and insecure or not. To neglect to do so might be the cause of the adolescent getting into serious trouble. It is the responsibility of the parents to step in at these times and make the decision without question or argument. It should be made immediately and with absolute finality. Although the youngster should know the reasons for the decision, there should be no argument or wrangling about it.

When it becomes necessary for parents to take a stand contrary to the adolescent child's wishes, care should be taken to differentiate between the act itself and the motive behind it. What the youngster wants to do may be inadvisable, and the parents may have to refuse to let him do it. However, it may be perfectly normal and understandable that the adolescent wishes to do it, and one must not condemn him for wanting to do the particular thing that has to be forbidden. This is an easy mistake to make, but a dangerous one, as the boy or girl is bound to be extremely resentful of an unfair judgment of their motives. On the other hand, if they know their parents are understanding, they will accept a refusal of something they wish to do with much less resentment than when their motives are unjustly criticized. An example of this would be the case of an adolescent who wishes to stay out until three or four o'clock after a party. Because of health, age, or other reasons, the parents may have to refuse to



allow him to do this, but it is certainly not abnormal or wrong for the child to wish to do so. In fact, it would probably be abnormal if he did not want to. If criticized for wanting to stay out, as well as being denied the right to do so, resentment will be greater and more lasting than if he feels his parents understood his wish, even though they could not allow it.

To summarize this important question of discipline with the adolescent, avoid all nonessential issues and allow them to have as much freedom, liberty, and responsibility as possible. However, when it is necessary to take a stand upon an important issue, do so fairly, justly, and understandingly, but immediately and definitely. If parents of adolescent children who are emotionally normal and healthy will consistently handle discipline in this way, they will find that neither they nor their children will have much real difficulty with resentment of authority.

In conclusion, I wish to emphasize again the normalcy of most adolescent reactions and changes. Because of lack of knowledge and understanding of the subject, a great deal of unnecessary unhappiness and even permanent emotional trauma develop. Although there is an unusual opportunity to do constructive mental hygiene work in this age group, it has often been neglected in the past. There is a tremendous need by adolescents and their parents for the counsel, help and advice of physicians. Physicians working with adolescents will find them most appreciative, interesting and lovable, and the rewards are very great both in terms of help given, and in personal pleasure and satisfaction.

#### Discussion

Dr. E. M. HAMMES, Saint Paul: I enjoyed Dr. Anderson's paper very much. It reminded me of what Dr. Lawson Lowrey, who established the Child Guidance Clinics in this Northwest once said—"It is wonderful how well our children develop considering the handicap we parents are." Dr. Anderson's excellent presentation is a definite challenge to both parents and medical men. The adolescent period is the most difficult period in the developing child. Fortunate indeed is the youngster whose parents can overlook the many and trivial annoyances that occur daily, and at the same time can lend a guiding hand to assist in the more serious problems, very vital in the proper emotional and moral development of this adolescent period.

Dr. C. N. HENSEL, Saint Paul: Perhaps, if we had more physicians with Dr. Anderson's perception in dealing with the emotional problems of the adolescent boy and girl, we might not find so many maladjusted adults in our offices.

As I listened to Dr. Anderson's thesis, I thought to myself how lopsided is our bringing up; our parents seem to feel that if they give us a religious education and our school teachers give us proper schooling, that that is all the preparation we need in facing the problems of life.

Yet last fall, at one of our meetings, we listened to Dr. Beck's thesis on "Educational Class Therapy" in handling maladjusted adults. Quite obviously maladjusted children grow up into maladjusted adults.

Now we hear from Dr. Anderson that he is working on maladjustments in their incipency. It seems to me that this is a tremendous field, and apparently Dr. Anderson is the first one in this community to recognize

this need. He has taken compassion on the bewildered child and his equally bewildered parents and tried to help them, and now he comes to this meeting and tries to help the bewildered doctor.

I think this is a splendid presentation and very important.

Dr. F. W. LYNCH, Saint Paul: Dr. Anderson deliberately avoided consideration of the physical changes which occur in adolescence, but I hope he will not mind discussion of one of these features. One might question the propriety of a dermatologist's discussing this presentation, but I believe that we see more adolescent patients than do specialists in any field other than pediatrics. Acne is extremely common, perhaps occurring in more than 90 per cent of all individuals at some time during adolescence. This is the disease which brings most adolescents to our offices. Since the condition is so common, it is difficult to evaluate the emotional factors related with its occurrence. However, when one examines patients whose acne has persisted into adult life or has developed in later years, then one can usually find evidence of both endocrine and emotional factors. It seems to me that the endocrine factors may be secondary rather than primary, and I wonder just how important the emotional factors may be in causing these eruptions, not only in the older persons but also in the adolescent individual. Some of the emotional response may be related to the parents' tendency to overemphasize hygiene and diet in these cases. Often these patients are led into the office by a dominant parent who insists on giving the history, asking and answering the questions, and taking the responsibility for treatment, leaving the adolescent individual completely helpless while in the office. Many others come in alone, without too great concern about their eruption, but forced to come because the mother or father has insisted that the adolescent take the initiative and assume responsibilities which he is not yet prepared for. These two groups will include the vast majority of the adolescents whom we see with acne.

Dr. Anderson has pointed out that the adolescent individual often responds to parental demonstrations of authority by resentment, or even revolt, and another group respond by withdrawal and the development of shyness. It is my impression that the patients with acne tend much more to fall into the latter group. It seems to me that acne is often associated with very serious emotional disturbances, and I wonder whether they may not be contributory in many instances rather than occurring as a result of the appearance of the eruption. I wish that Dr. Anderson would express his opinion as to the possible relationship of acne, adolescence and emotional difficulty.

Dr. ANDERSON, in closing: I wish to thank those who have spoken, for their discussions. I feel, as Dr. Lynch does, that there is a definite relationship between emotional conflict and disturbances and many of the cases of acne and urticaria. My impression is also in accordance with his that acne, by and large, is most frequently seen in the withdrawn group of children. However, one must raise the question as to whether the withdrawal is the cause or the result of the acne.

Before closing, I wish again to emphasize that adolescence should be and usually is a period of normalcy, interest and pleasure. In our dealings with young people of this age and their parents, we should endeavor to help them through by our approach and understanding of the changes and problems that arise so that they can meet them wisely. By so doing, a great deal of difficulty, unhappiness, and actual tragedy can be prevented.

The meeting was adjourned.

A. E. CARDLE, M.D., Secretary



# Minneapolis Surgical Society

Meeting of May 6, 1948

L. Haynes Fowler, M.D., Presiding

## FIBROUS STERNOMASTOID "TUMORS" OF INFANCY

### Their Role in the Etiology of Muscular Torticollis

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Congenital muscular torticollis is an abnormality occurring in the newborn, the main characteristic of which consists of a tumor which involves one of the sternomastoid muscles and produces a torticollis. The salient feature for which the surgeon is called is the mass in the neck which closely resembles and often is confused with a malignant tumor. We wish to emphasize that this type of torticollis is not to be confused with the numerous other types of traumatic, infectious, neoplastic, structural or paralytic diseases, conditions which lie in the domain of the orthopedist. This condition is one of scar transformation and contraction of the sternomastoid muscle, which, if corrected surgically at an early stage in the disease, before the development of skeletal and permanent deformities, will result in a high percentage of cures. This is possible without the use of long-continued splinting, casts, or stretching maneuvers, and consequently is of importance to general surgeons who are likely to be called first to see these cases. This fact should be emphasized since it has been estimated that approximately two-thirds of all cases of fully developed torticollis result from this pathologic entity in childhood. The gross resemblance of the disease to neoplastic changes in the sternomastoid muscle is often striking and has occasionally been an additional source of confusion. In large medical centers, of course, this problem is encountered with moderate frequency by pediatric surgeons, but its relative rarity in the experience of the general surgeon seems to make this presentation worth while.

Torticollis, or "wryneck" may be the result of one or more of a host of different factors, as seen in Table I.

The type with which this discussion is concerned is the last and is of purely congenital origin. It is quite rare, occurring about once in every 150,000 births (Howell), and is only one-tenth as common as club foot. There is no racial predisposition, and it is seen in equal numbers in males and females. In a review of the literature by Hough it was found that 45 per cent are on the left side and 55 per cent on the right.

This condition rarely manifests itself at birth, but usually about the tenth to the fourteenth day there appears a hard fusiform swelling in one of the sternomastoid muscles which may reach the size of an olive.

TABLE I. CLASSIFICATION OF TORTICOLLIS

1. *Structural*
  - (a) *Osseous*
    - Hemivertebrae
    - Congenital fusion of cervical vertebrae
    - Klippel-Feil syndrome
    - Malformation of skull and vertebral processes
    - Cervical rib
    - Pterygium colli
    - Compensatory to structural defects of dorsal and lumbar spine
    - Spina bifida
    - Postrachitic
    - Sprengel's deformity
  - (b) *Myogenic*
    - Congenital absence of cervical muscles
    - Congenital hypertrophy
2. *Paralytic*
  - Erb's
  - Spasmodic
  - Anterior poliomyelitis
  - Spastic paralysis
  - Postinfectious (neuritis)
  - Post-traumatic
3. *Vascular*
  - Congenital
  - Anterior scalenus syndrome
4. *Infections*
  - Retrotonsillar abscess
  - Otitis media
  - Myositis
  - Cervical abscess
  - Spondylitis
  - Meningitis
  - Cervical adenitis
  - Retropharyngeal abscess
  - Mastoiditis
  - Infections of cervical vertebrae
  - Arthritis and synovitis
  - Cutaneous infection
  - Fascitis
  - Infections of congenital cysts and diverticula
  - Spontaneous dislocation of cervical vertebrae
5. *Traumatic*
  - Fractures and dislocations of cervical spine
  - Fractures of cranial base
  - Trauma of cervical fascia, muscles, nerves, et cetera
  - Fracture of clavicle and scapula
6. *Functional*
  - Hysterical
  - (?) Spasmodic torticollis
7. *Ocular*
  - Visual defects, corneal scars, et cetera
  - Muscular
8. *Aural*
  - Deafness
  - Vestibular
9. *Scar formation*
  - Burns
  - Trauma
  - Lupus, et cetera
10. *Neoplastic*
  - Osseous
  - Myogenic
  - Local
  - Lymphatic
  - Central
  - Vascular
  - Nerve
11. *Congenital*
  - Posture in utero
  - Trauma at birth
  - (?) Ischemia of muscle

Torticollis is present. The muscle feels short, fibrous and inelastic, and the head is tilted toward the affected side and the face toward the opposite. If not treated, the "tumor" gradually disappears, but the muscle remains as a fibrous cord. With growth of the neck, the torticollis increases because the sternomastoid does not lengthen. As a result of this imbalanced pull, a facial asymmetry develops, the level of the eyes changes, the clavicle and shoulder become elevated, the skull becomes foreshortened in the fronto-occipital diameter (called by some "facial scoliosis"), and the mastoid process becomes more prominent. The condition then becomes a far more serious problem and is of major orthopedic importance. This discussion does not include this type of case.

### Etiology

A review of the literature indicates that there are many theories of etiology, without any general agreement, although of recent years certain theories have generally been discarded, among which may be mentioned the hereditary, neurogenic and infectious theories. For detailed discussions, reference should be made to the articles of Chandler and Altenberg, Fitz Simmons, Fisher, and Hough.

A theory which gained much support in the past was that the condition arises as a result of an actual tear in the muscle during birth, followed by a hematoma which becomes organized. More recent authors give little credence to this, because of some of the following considerations. Although it is true that a majority of these infants are born following difficult or breech deliveries, still many with the typical sternomastoid condition are born following perfectly normal deliveries. Also, the "tumor" is never noted immediately following birth, and when found at the usual ten to fourteen day interval it is always hard and fibrous, never soft or fluctuant. In addition, hemosiderin or actual hemorrhage is never seen microscopically.

The theory of occlusion of the arterial blood supply of the muscle during delivery, though popular earlier, is no longer held tenable. As Chandler and Altenberg point out, the pathologic picture in muscle following arterial occlusion is extreme atrophy and disintegration, not fibrosis.

The theory of temporary occlusion of the venous drainage of the muscle has gained much acceptance, largely because of the excellent work of Middleton, and has much to recommend it. Middleton reproduced and amplified the work of Brooks, and applied it to the problem of the etiology of muscular torticollis. He found that experimental occlusion of the venous drainage of certain muscles in dogs would initiate a process of degeneration and fibrosis which would continue even after the venous obstruction was relieved. Most authors in the recent literature accept Middleton's work as pointing to the most plausible etiology.

Chandler and Altenberg, however, felt that Middleton's work was in part fallacious in that his ideas on the blood supply of the sternomastoid muscle, based on the early work of Nove-Josserand and Viannay, were in error. According to these latter authors, the upper, middle, and lower thirds of the muscle have separate

vascular supply, and there is little or no cross-communication or anastomoses between these segments. Chandler and Altenberg dissected the sternomastoid muscles of ten stillborn fetuses and felt, on the contrary, that both the arterial and venous systems showed a great deal of overlap and free cross-communications, and that there was, in general, a rich and unsegmented sort of vascular supply. They also pointed out that venous thrombosis can never be demonstrated grossly or microscopically, as would be expected were venous occlusion the predominant factor. They feel that in combination, intra-uterine malposition, trauma at birth, and possibly a pre-existing change of the involved muscle are the etiologic factors of importance.

An interesting observation was made by these authors, who found in an antepartum roentgenogram that the fetus was in a breech position, with the head in right lateral flexion. The infant was delivered by Cesarean section and had a torticollis, in which, fourteen days later, the usual "tumor" developed. From this case they emphasize the point that intra-uterine torticollis could prevent engagement of the fetal head and thereby cause a breech presentation. The inference follows that in all cases of breech delivery the obstetrician and pediatrician should make a thorough inspection to detect this abnormality.

From the foregoing it seems that no one theory explains the condition and that several etiologic factors may operate to produce this deformity, such as malposition within the uterus, trauma during delivery, and local ischemia. These may each act in various degrees to cause this pathologic entity by rendering this muscle atrophic, maldeveloped, fibrosed and ultimately shortened.

### Pathology

Grossly, the "tumor" is usually not a discrete one but a fusiform swelling of a goodly portion of the entire muscle, at times involving its entire length, hard in consistence, and, on cross section, white, fibrous and glistening. Microscopically the muscle cells are almost entirely replaced by dense, fibrous, collagenous connective tissue. What few muscle fibers remain are seen to be in varying stages of degeneration, with swelling and vacuolization, some with many nuclei. There is an absence of muscle striations, and changes in their staining characteristics are present. No evidence of hemorrhage nor any hemosiderin is found. In the later stages more and more of the muscle tissue disappears, and the fibrous tissue becomes increasingly dense and acellular. In the end stage, all that remains is dense inelastic hyaline connective tissue with nuclei arranged in parallel rows resembling tendon. This latter picture is that seen in older children, where the muscle is replaced by a firm fibrous cord, and is a stage with which, as pointed out earlier, the orthopedist is more concerned than the general surgeon.

### Surgical Considerations

It is our feeling that if a definite "tumor" is present in the sternomastoid, it should be removed along with most of the muscle at a very early age, before it undergoes the advanced fibrous change and scar contraction

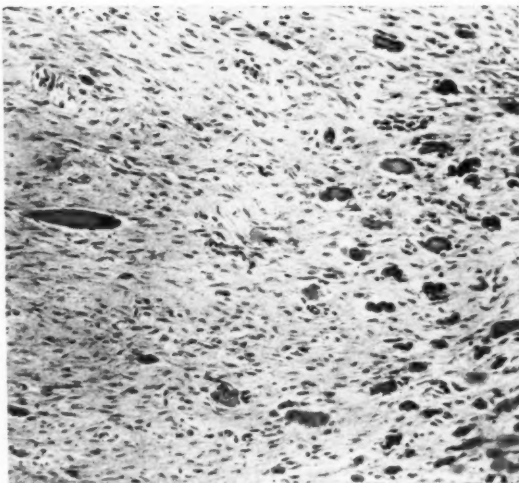


Fig. 1. This slide (magnification 65x) shows an area where muscle merges into the dense fibrous tissue. Numerous isolated degenerating bits of muscle tissue can be seen.



Fig. 2. This slide shows, at a somewhat higher magnification (200x), the typical picture of the central areas of the mass, namely, dense fibrous tissue. In some places the tissue is quite cellular with relatively young-looking, plump fibroblasts, and in other areas it is more compact with older-appearing collagenous connective tissue.

described. If this is allowed to take place, the child likely will develop an asymmetry of the face, with bony changes and the like, as a result of the increasing and prolonged pull of the contracted muscle. At this stage these patients are around four to five years of age and present orthopedic problems of various types and are not intended to be a part of the present paper.

#### Technique

In infants of but a few weeks of age, great care and caution must be exercised in removing the tumor mass. A transverse incision about one inch long is made in the lower skin crease just above the clavicle. The platysma muscle is split, and the "tumor" is then separated from adjacent structures on all surfaces by blunt dissection with a small curved forceps. The sternal portion and the clavicular portion of the muscle are isolated. A small forceps is then passed beneath the muscle, and the latter is divided by multiple transverse incisions until freed from the clavicle. The "tumor" is then elevated from the deeper structures of the neck and delivered from the wound. The spinal accessory nerve is isolated and freed by cutting through the tumor so as to spare it. The proximal portion of the "tumor" is cut across transversely at about the junction of the upper and middle third of the muscle. All bleeding points are ligated. The wound is closed by deep sutures and the skin by a subcuticular stitch. A pressure dressing is applied.

#### Case Reports

Individual case reports of these three infants are so similar as to preclude the necessity of relating them separately. The salient features are hereby all incorporated in the one single description to follow.

Two of the infants were four weeks old, and one was six weeks. All were males. One was born of an entirely

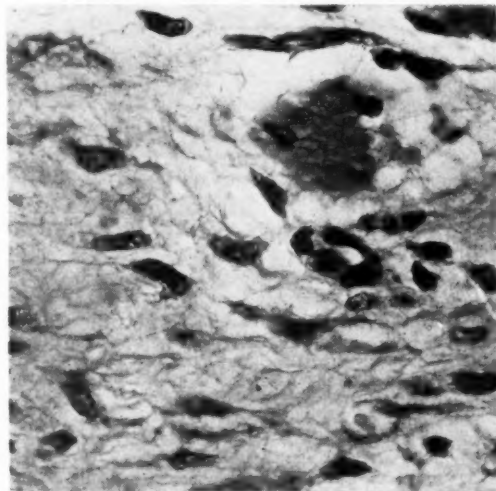


Fig. 3. This slide, taken at a magnification of 800x, well illustrates the intensely cellular character of some of the fibrous tissue, with fat nuclei and delicate collagen fibrils. Also, there is seen a bit of degenerating muscle with loss of striations and vacuolization. It is evident that the distinction between this very cellular fibrous tissue and a very low-grade fibrosarcoma might be difficult. In fact, in one of our cases, the pathologic diagnosis was the subject of a good deal of discussion before the diagnosis of fibrosarcoma was definitely discarded.

normal birth, one of prolonged dystocia, and the third was a breech delivery following twelve hours of difficult labor, and associated with a fracture of the right humerus. All were fairly large infants weighing from 8 pounds 7 ounces to 9 pounds 10 ounces at birth. The right sternomastoid muscle was involved in each case.

The observations of the parents in each case were practically identical. When the child was two to three

weeks old there appeared a noticeable mass in the right side of the neck, associated with distress on the part of the infant when his head was turned to the left. Soon there was a definite tilting of the head to the same side as the tumor, with the chin directed to the opposite side, a position which became a constant one.



Fig. 4. One of the author's patients, two years after operation. Motions of the head and neck are perfectly free. The position of the head is due to the efforts of the photographer to display the area of operation, and not to any structural abnormality. The inconspicuousness of the scar and the lack of cosmetic defect are evident.

Routine general physical examination of all infants, including laboratory work, was negative except for the presence of a cartilaginous, hard, slightly moveable mass in the right sternomastoid muscle. It was best described at the size, shape and consistency of an olive. The head was tilted to the right, with the chin directed to the left, and movements to straighten the head were accompanied by obvious distress.

Using ether anesthesia, a one inch incision was made just above the clavicle near its medial portion, the clavicular and sternal heads of the sternomastoid muscle were detached and the mass then dissected upward. The lower two-thirds to three-fourths of the muscle was then removed, including the tumor mass. The spinal accessory nerve was preserved. Convalescence in each case was uneventful.

The specimens removed measured from 2 by 1 by 1 cm. to 3 by 2 by 1 cm., and all were of the same appearance, being greyish white in color and almost cartilaginous in consistency. On cut section of the tumor, no muscular elements could be seen grossly. On microscopic section the tissue was seen to be a dense collagenous fibrous connective tissue with rare small bundles of degenerating muscular elements.

#### Result of Treatment

Follow-up of these cases by various authors ranges from a few weeks to fifteen years, and the results have been most gratifying. The deformity is corrected, and

there is full range of motion of the neck. Slight flattening of the neck over the involved muscle is occasionally present but is hardly noticeable, as is also a slight prominence of the clavicle at the sternal junction where the muscle has been severed.

In the author's cases, gratifying results have been noted. The longest time elapsed is now two years, and complete cure is evident in all cases up to date (Fig. 4).

#### Summary and Conclusion

A firm olive-shaped "tumor" in the sternomastoid muscle of a newborn infant producing torticollis, and appearing ten to fourteen days after delivery, is a fibrous mass and not a hematoma. It frequently resembles a neoplasm in its gross aspects.

The etiology of this condition is not well understood, but one or more of several factors operate in various degrees to produce this pathologic entity. These factors are:

(1) In a uterine malposition with the head laterally flexed and the shoulder elevated, compression of the sternomastoid muscle could take place against the acromion, clavicle and humerus. By this means, interference with development of the muscle could occur, shortening it and predisposing it to birth trauma and to a breech presentation.

(2) Birth trauma due to difficult deliveries, especially those in breech presentation, could account for part of this pathologic picture. With the traction, pressure, and rotation of the neck these infants undergo, it is possible to understand how sufficient trauma to the sternomastoid muscle can occur as to result in its degeneration and fibrosis.

In about two-thirds to three-fourths of these cases there is an associated history of either a difficult or prolonged labor or a breech presentation in the birth of the infant.

The treatment of this condition is resection of the tumor and the remaining fibrous mass representing the sternomastoid muscle. This will correct the torticollis and will prevent later associated deformities of the head and face.

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#### Discussion

DR. O. S. WYATT: It is a privilege to be here. I haven't very much to add to the review Dr. Larson has given. It is an interesting anomaly, a congenital anomaly, if you wish, and I think that the etiology of it is particularly interesting. Middleton was an Englishman who did a lot of work on torticollis in 1930, and I am not so sure that his idea of the etiology is perhaps not a pretty



good one. Chandler, too, did a lot of work on torticollis, and I think he stimulated a good deal of interest in it in 1944 when he described the tumor. The type of operation he was doing at that time developed considerable interest throughout the country. Middleton could take the sartorius muscle in the dog and produce an arterial occlusion and still not produce any fibrosis. But, if you cut off the venous supply, a fibrosis will develop. Now, why do we fail to see this in a human being until fourteen days following birth? Middleton proved it impossible. If you prepare the muscle of a dog, you will not find this fibrotic development until fourteen days have gone by; therefore, I am inclined to feel that venous occlusion is probably abnormal in uterine life, and perhaps the condition develops from trauma at birth. I am not inclined to attribute too many etiological factors to the cause of this condition, because it seems to me that there must be a lot of abnormal positions in the uterus.

We don't see this condition very frequently, perhaps once in 1,500 patients, and then most frequently in breech delivery.

One must differentiate sharply, however, when dealing with congenital torticollis. Dr. Larson is not talking about the condition which orthopedists work with when those children are four, five or six years of age, when there is complete fibrosis of the muscle. He is speaking about the congenital tumor which arises in the sternocleidomastoid muscle. When you think you may be feeling glands in the neck, you are feeling this tumor, and it feels like a cartilaginous mass, about the size of an olive. We think that that is the time to remove the tumor, dissecting maybe all the muscle, maybe half and sometimes two-thirds. Those babies wear a collar for a couple of weeks and always get a nice result with good motion, and as they grow up there is no evidence of torticollis when they get to be five or six years of age.

## DIAGNOSIS AND TREATMENT OF THROMBO-PHLEBITIS WITH SPECIAL REFERENCE TO THE USE OF ANTICOAGULANTS

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One often reads articles about the treatment of thrombophlebitis of the lower extremities in which there is no definition of what criteria were used as a basis for including the cases. Doubtless there is a difference of opinion as to whether certain patients actually do or do not have the disease. The value of such articles on this subject might be questioned when many different examiners of varied experience have made the diagnoses upon which the results of treatment have been analyzed.

We thought it would be interesting to evaluate the various diagnostic criteria in our series of patients, at the University of Minnesota Hospitals, who were to be treated with anticoagulants wherever these drugs were not contraindicated.

All of these patients were examined personally and followed by the author, and represent all cases of thrombophlebitis in our hospital from May, 1946, to January, 1948.

From the Department of Surgery, University of Minnesota Medical School, Minneapolis.

NOVEMBER, 1948

## Diagnosis

In order to be reasonably sure of the diagnosis of thrombophlebitis, we have included only those cases having at least three of the following signs and symptoms: swelling, vessel tenderness, pain, increased temperature in the limb, dilated superficial veins (unilateral), cyanosis (unilateral), pulmonary embolism (reasonably proven), and change in temperature and pulse (otherwise unexplained). Where unilateral swelling was found alone, or in cases of pulmonary embolism alone without leg signs or symptoms, the cases were followed but not included in this series. In three instances, patients with pulmonary embolism alone developed signs and symptoms of thrombosis in four to five days, and thus were included in the study.

Swelling was the most frequent sign in this series. It occurred in ninety-three (88.5 per cent) of the extremities.

Tenderness was next to swelling in frequency. It occurred in seventy-nine extremities (75 per cent).

Deep calf tenderness, elicited by pressing between the gastrocnemius muscle bellies in the calf, was found to be the most frequent and consistent of deep vessel signs in our series, being present in seventy (66.55 per cent) of the extremities.

Calf-squeeze tenderness is elicited by gently squeezing the calf from side to side. Its value has been stressed by Moses.<sup>11</sup> While probably not as significant as deep calf tenderness, it is an important maneuver in substantiating deep vein involvement when used with the deep calf pressure. It was found in fifty-six (53 per cent) of the extremities.

Homan's sign<sup>6</sup> is the presence of pain in the calf elicited by passive dorsiflexion of the foot. In all of these maneuvers for deep vein tenderness, one must remember to keep the knee flexed, thereby relaxing the calf muscles. This sign was found to be positive in fifty-two (49.5 per cent) of the extremities. Aside from the fact that this sign is the least frequent of the signs mentioned here, we feel it is much less reliable for routine examination because of the great possibility of its being positive with simple muscle involvement alone. It involves mostly muscle stretching and deep vein pressure only secondarily, whereas the calf squeeze and especially the deep calf maneuvers involve more direct pressure over the vessels in question, mainly the posterior tibial and calf veins where most thromboses probably begin.

Popliteal tenderness was sought in all cases and was found in only seventeen instances, and never without other tenderness. This would lead one to believe that it is of limited value as a diagnostic sign.

Anterior tibial tenderness was found in only two instances. Involvement of the anterior tibial veins in thrombosis is not frequent but has been found to be present in a number of instances. This was indicated by fairly definite venographic studies done by the author in patients with chronic deep thrombophlebitis and in a few of the cases in this series. The infrequency of anterior tibial vein involvement might be due to the fact that these vessels do not drain large venous lakes as do the posterior tibials from the calf muscle group.

Frykholm<sup>5</sup> has proposed that collapse of veins with contiguity of vein walls is causative in thrombosis of the deep leg veins in bedridden patients. The anterior tibial vessels are protected from such pressure by their anatomical position.

Produnda femoris involvement, frequently overlooked, has been emphasized by Homans. It is elicited by grasping the biceps femoris muscles and squeezing moderately. In our series none of the twelve cases having profunda femoris tenderness had it as the only sign of tenderness in the extremity. It is quite possible that such thrombosis might conceivably exist alone, but from our observations to date, it would seem to be rare.

We have found that a temperature difference of 3° to 4° F. can be determined fairly consistently by simple palpation. Except for a few instances where an electrothermocouple was used, palpation was used for determining increased temperature, and only definite differences are included.

In fifty-four instances (53 per cent) there was an appreciable temperature increase in the affected limb.

Pain was present in fifty-four patients at rest. Many more had pain in the calf only on walking. A few of the patients described their discomfort on walking as tightness rather than pain. This was noted especially in patients with a high level of thrombosis, as in the iliofemoral thromboses. These patients complained of tightness in the thigh as well as in the calf.

The dusky color often described as a concomitant of thrombophlebitis was noted in only four of our cases.

The presence of dilated superficial veins is sometimes of use in making a diagnosis of deep vein thrombosis. This finding was only noted in three cases in this series. We believe from our experience with patients studied prior to this series and subsequent to it, that this dilatation of the superficial vessels occurs at least twice as often as recorded here.

The sural veins are veins draining the posterior muscle group of the leg. In two cases there was found a simple sural vein thrombosis with surrounding induration of the calf. These thrombi can often be felt on one or both sides of the upper calf just below the knee. This condition should not be treated lightly and is as important as any other deep thrombophlebitis or thrombosis, for such thromboses progress as a rule to involvement of the popliteal vein and from there on up. Many of our cases of deep thrombosis had induration of the calf, probably due to a blocking of the sural veins as they enter the popliteal.

#### Treatment

It is obvious that the treatment of venous thrombosis of the lower extremities should be directed at (1) the prevention of propagation of an existing clot, (2) the prevention of embolization, and (3) keeping the patient as comfortable as possible both during and after such treatment.

At the beginning of this study it was decided that all patients with thrombophlebitis in the University Hospital would be treated by anticoagulants unless they were particularly unsuited to this form of treatment by virtue of certain contraindications, such as subacute bac-

terial endocarditis, renal or hepatic disease, bleeding lesions, preoperative to major surgery where in the opinion of the surgeon anticoagulants were not desirable, and in postoperative cases where large bare bleeding surfaces were to be expected.

It was also decided that these patients would be treated with bed rest in moderate Trendelenburg position (the foot of the bed on 4 to 6 inch blocks) as soon as the diagnosis of thrombophlebitis was made. This method of care was prompted by the work of Bauer,<sup>3</sup> who showed fairly conclusively that the rate of venous blood flow was increased by this position, keeping the veins small and free from stasis or laking. The purpose of this procedure is to reduce to a minimum the chances of propagation of thrombi already formed and to discourage new thrombus formation further than might be done by the anticoagulants. It is granted that this procedure colors the total picture. This study was begun when the use of anticoagulants was not as well accepted as it is now, and an added safety factor was thought advisable.

Other points decided on at the beginning of the study were that no patient should receive sympathetic blocks, local or reflex heat or other forms of therapy directed at the thrombophlebitis.

One patient received repeated sympathetic blocks for concomitant or primary peripheral arterial embolism.

#### Heparin

Since the original work of Murray and MacKenzie<sup>12</sup> and of Crafoord and Jorpes, heparin has come into clinical use increasingly, both as a prophylaxis against primary thrombosis and as a preventive against propagation of the thrombosis already existent.

This drug was used in fifty-four of our cases, exclusively in eight, and with dicumarol in forty-six:

In the first twenty-five cases in which heparin was used, the patients were given this drug intravenously every three hours. An attempt was made to keep the hour-and-a-half clotting time at two to three times the control's or the patient's normal. The majority of this group required 50 mg. of heparin intravenously every three hours to maintain this level of clotting time. A few cases required as much as 60 to 70 mg. for the same effect.

Bauer recommended a dosage of 50 mg. every four hours during the day and 100 mg. at midnight. His series had such obviously good results that we decided to try this method of treatment with heparin, and up to the end of this series of cases had put twenty-five patients on this regimen. In this group, the peak of the clotting time was usually at one and one-half hours and was normal again at four hours.

Clotting times were taken before starting heparin, and then in the early cases every half hour after each dose for two to three doses. It became apparent quite early that the clotting time was down to normal within three to four hours after each injection of 50 mg. and well within eight hours after the 100 mg. midnight dose. This midnight dose of 100 mg. was used merely because we wished to give Bauer's method a fair trial. In only one case in our group was the clotting time

elevated eight hours after the midnight 100 mg. dose.

We tried heparin in Pitkins menstruum in several cases, as recommended by Loewe et al,<sup>9</sup> but could only reproduce his result with twice the dose he recommended. Our experience with this method consists of some dozen patients and is probably too small to draw any just conclusions.

#### Dicumarol

The action of dicumarol, as described by Link,<sup>8</sup> is primarily on the liver, inhibiting its formation of prothrombin. The anticoagulant effect of dicumarol results only from the diminution in the available prothrombin usually necessary to clot formation. Admittedly it is a potentially dangerous drug when its action depends on the irregularities of intestinal absorption and a special effect on the liver's prothrombin production. For these reasons one must be prepared to follow prothrombin times regularly and to combat the possible results of occasional unpredictable prothrombin depletion that may result before attempting the use of this drug as outlined below.

This anticoagulant was used in seventy-seven of our cases. We gave the average case 300 mg. of dicumarol the first day (100 mg. per 50 pounds of body weight), 200 mg. the second day (two-thirds of the initial dose), and 100 mg. on the third day (one-third the initial dose) providing the prothrombin ratio (control; patient) was not 1.5 or higher. On the second day, dosage was divided into 100 mg. for morning and evening doses. This allowed us to get a little longer spread of our therapeutic level of prothrombin ratio from the initial dosages.

In the early part of our experience with dicumarol we noticed some instances of bleeding from the mucous membranes, wounds, kidneys and so forth. During this time we were keeping our prothrombin ratios between four to five times the normal. As can be expected by the curves of Quick,<sup>13</sup> the prothrombin time shot to extremely high levels, and in some instances the plasma could not be made to clot. In these cases vitamin K, in doses of 72 mg. intravenously, was given, and usually the prothrombin time returned to reasonable levels within ten to twelve hours, and on repeating this dose (if necessary), in another ten to twelve hours the prothrombin time would be normal and stay that way without further dosage. We found also that whole blood transfusions would bring the prothrombin time down, but the longest effect we were able to demonstrate was nine and one-half hours, after which time the prothrombin time gradually returned to a high level. The higher the prothrombin time, the more blood it took to bring the prothrombin time back to normal. Fresh blood was much more potent in this effect than blood twenty-four hours old or older.

In a few cases secondary operative procedures were found necessary after patients had received dicumarol, such as drainage of subphrenic abscesses, et cetera. For these cases, it usually sufficed to give the patient one fresh whole blood transfusion two to three hours prior to operation, so that the prothrombin time was close to normal at the time of the procedure and remained

so for eight to nine hours and then rose again. With one patient being treated prophylactically and prepared as outlined above, subphrenic exploration was attended by a good deal of bleeding, and the patient required another transfusion before it was controlled.

After changing our treatment to keeping the prothrombin ratio between two to three times the normal, the incidence of significant bleeding all but disappeared, save for an occasional microscopic or transient gross hematuria.

#### Duration of Anticoagulant Therapy

The patients with pulmonary embolism were treated the longest. These comprised the group having between fourteen and twenty-one days of dicumarol treatment in therapeutic range.

We attempted to keep our nonembolism patients in range for fourteen days and the embolism patients in range for twenty-one days. The nonembolism patients were ambulated with ace bandage support as soon as all signs and symptoms were negative (usually by the seventh day) and were kept in therapeutic range until treated for fourteen days. The pulmonary embolism cases were kept in bed for at least ten and, in most cases, fourteen days, and kept in therapeutic range until a total of twenty-one days of therapy was reached.

#### Femoral Vein Ligation

Eight patients in this series had common femoral vein ligations in the presence of one or another of the contraindications mentioned above for the use of anticoagulants.

#### Pulmonary Embolism

There were twenty-seven patients in this series who had pulmonary embolism. These represent 29 per cent of the entire group. This figure is a little less than the 33 per cent found for untreated cases in a similar group by Welch and Faxon<sup>16</sup> and by Allen.<sup>1</sup> Twenty-one or 78 per cent of these patients already had a pulmonary embolism by the time treatment could be begun.

Six patients developed pulmonary embolism while actually on anticoagulant therapy. These cannot all be considered to have had adequate treatment, however. Four patients had their pulmonary embolism on the first or second day after starting the treatment and so were, in a sense, not adequately treated. These four patients, added to the twenty-one who had pulmonary embolism to begin with, makes twenty-five (92 per cent) of this group who had pulmonary embolism before anticoagulant treatment could become effective.

There were five deaths in our series. In only one of these can we consider pulmonary embolism as the primary cause. All of these patients were seriously ill and, except for one, died gradual deaths from causes other than pulmonary embolism. Three of these patients, however, were found to have pulmonary emboli at autopsy although the emboli were not thought to be the cause of death.

According to the data presented by Welch and Faxon,<sup>16</sup> about 30 per cent of the patients who have one pulmonary embolus from a thrombophlebitis will have

another. They also indicate that out of this group of patients with one embolus, about 25 per cent will have a fatal embolus. In our series there were only two secondary pulmonary emboli, and neither of these was fatal.

In nineteen of our patients there were x-ray findings characteristic of pulmonary embolism. Most of the emboli produced x-ray evidence on the right side and showed a preference for the lower lobes. This has been observed and commented on by Roessler,<sup>14</sup> Allen<sup>2</sup> and others.

A good portion (70 per cent) of the patients had chest pain and hemoptysis. Chest pain was the most common symptom. An occasional patient did not cough bloody sputum for several days, and others had cough without sputum and some neither.

#### Hemorrhagic Manifestations

Except for a post-transurethral-prostatectomy patient, urinary bleeding was not a source of concern in this group, even though grossly visible in eight cases. In all except two patients no change was made in the treatment and no special measures taken to stop the bleeding. In all of these it cleared up spontaneously within three days.

Peculiar hemorrhagic skin lesions in our patients treated with dicumarol have been observed. These lesions have been accompanied by a burning pain and extreme tenderness. All have healed spontaneously within ten days. No other skin lesions have been noted in our dicumarol-treated patients suggestive of sensitivity or toxicity attributable to dicumarol.

#### Associated or Primary Conditions

There were nine cases (10 per cent) where deep thrombophlebitis was the primary disease. Careful historical and physical examinations revealed no other significant concomitant disease.

The high incidence of thrombophlebitis in patients with cancer has long been noted<sup>10</sup> and is seen in our study also. In patients with thrombophlebitis one should always suspect and look for a neoplastic process when there seems no apparent causative factor for the thrombosis. In one of our patients it was not until post-mortem examination that a carcinoma of the pancreas was found. Cancer was a concomitant or primary disease in thirty-eight of our cases. Forty-one per cent of our patients were treated postoperatively, and, of these, twenty-four had cancer. In all of the patients operated in our hospital during the period of our study, twice as many who had cancer developed thrombophlebitis as those who had no cancer.

Two patients were pregnant when they developed thrombophlebitis of the lower extremities and were given full courses of anticoagulant therapy. Their prothrombin times were back to normal three weeks prior to delivery.

Two other patients developed thrombophlebitis of the lower extremities in the immediate postpartum period and were also treated with anticoagulants under our regimen and recovered without event. We have treated several patients to date with anticoagulants prophylac-

tically in the immediate postpartum period without event. In view of the current controversy in the literature regarding the possible effect of dicumarol on the newborn, none of the mothers were allowed to nurse their babies until their prothrombin time had returned to normal.

During the same period as our study there were sixty hip operations for fracture in our hospital. Four (6.77 per cent) of these developed thrombophlebitis.

A great number of our patients had cardiac disease along with their other difficulties, but no special effort was made to correlate this finding as a separate entity.

As has been noted by Dennis,<sup>4</sup> the incidence of thrombophlebitis in ulcerative colitis is about 30 per cent. In full cognizance of this fact, all ulcerative colitis patients operated in our hospital for ileostomy are given prophylactic anticoagulants. As a result, none of our ulcerative colitis patients having ileostomy operations has developed thrombophlebitis since instituting this prophylaxis.

#### Summary and Conclusions

The diagnostic signs were evaluated in ninety-two patients (105 extremities) having thrombophlebitis of the lower extremities in an eighteen-month period at the University of Minnesota Hospitals, and it became apparent that the most significant findings were those of swelling, tenderness, temperature changes and pain, in this order.

The most frequently positive and probably the most significant sign of deep vein involvement was deep vein tenderness. Tenderness on calf squeeze was found to be the next most frequent sign and was of appreciable significance in making an early diagnosis of thrombophlebitis.

Color changes, dilatation of superficial vessels and change in vital signs are a definite aid in making the diagnosis, but are of somewhat less significance due to their relative infrequency.

We have presented a method of treatment of deep vein thrombophlebitis with heparin and dicumarol and bed rest in the Trendelenburg position. It is our opinion that this is a rational way of treating most cases of deep vein thrombophlebitis.

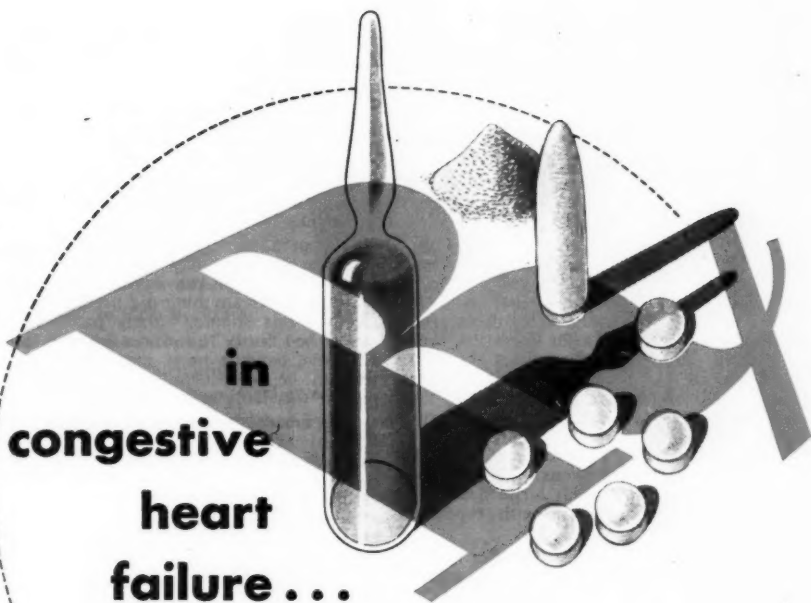
The use of anticoagulants in our patients has reduced the incidence of secondary pulmonary embolism from an expected 30 per cent to 2.17 per cent. It has reduced the incidence of secondary fatal embolism from an expected 25 per cent to zero.

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### Discussion

DR. VERNON SMITH: Thank you very much for the privilege of being here. About a year and a half ago, we started treating patients over forty years of age who had cancer, hysterectomies, hernioplasties, hip fixations, and so forth, prophylactically with dicumarol. We gave them 200 mg. immediately after operation, then approximately 100 mg. daily, depending upon the prothrombin time. We tried to maintain their prothrombin time in the neighborhood of 25 per cent. Even with the prothrombin time above this level we experienced hemorrhage of the pericardial sac on two occasions, hemorrhage from the bladder on one occasion, and hemorrhage from the wound on two occasions. These hemorrhage complications we treated with large doses of Vitamin K, 72 mg. intravenously, and with repeated whole fresh blood transfusions.

A patient who had had a previous embolus after major surgery some four years before was treated with heparin immediately postoperatively after a bilateral hernioplasty. He was given 50 mg. of heparin every four hours intravenously. Three hours after the second dose of heparin, the patient had severe hemorrhages into both of his hernioplasty wounds, and the heparin was stopped at once.

A second patient who had had a previous nonfatal embolus several years before, following a hysterectomy, was treated prophylactically with dicumarol after a cholecystectomy a few months ago. Her prothrombin time was maintained in the neighborhood of 25 per cent. On her seventh postoperative day she developed a sudden severe pain in the right chest posteriorly. Since this was exactly the same postoperative day on which she had developed her previous embolus, and since the patient was quite apprehensive and nervous, we were not certain whether or not this was a pulmonary embolism. There was no x-ray evidence of the same. There was little blood pressure and pulse change. There was no bloody sputum. The patient had been ambulant since the day of surgery. She was treated that night with oxygen and papaverine intravenously but was kept ambulant. The next day the patient's pain disappeared and she had no further interference with her convalescence.

Since we have been following the prophylactic treatment of these patients who are most apt to develop thrombophlebitis or phlebothrombosis, we have seen no pulmonary embolic phenomena of which we are absolutely certain. We have seen no out-and-out thrombophlebitis. There were three patients who might have had a phlebothrombosis involving the deep veins of the calf. Their only symptom was pain on deep muscle palpation and pain on walking. In two of these patients, the pain disappeared after lumbar sympathetic block. The prothrombin times of these patients were maintained around 25 per cent, and they were kept ambulant; no further sequelae developed.

Outside of the occasional case of hemorrhage (3 per cent) that one sees following the prophylactic use of dicumarol or heparin, the only other disadvantages are the expense of the medication (nil with dicumarol), the expense of the laboratory tests, and the pain experienced due to repeated vena punctures.

I believe the time is coming when most of the pa-

tients over forty years of age, with carcinoma, hysterectomy, hernioplasty, fractured hip, and so forth, will be treated prophylactically with anticoagulation therapy.

DR. D. A. FELDER: Dr. Smith's experience with the cholecystectomy patient who had the pulmonary embolism is an interesting one. I do not think that dicumarol is the answer to the question of anticoagulants, nor do I think that anticoagulants are the answer to the question of abnormal blood clotting. It is a wonder that we don't get more pulmonary embolism in patients treated prophylactically with dicumarol because, as I mentioned before, dicumarol only cuts down the available prothrombin. Unless the effect is exceptional, such a patient's blood will still clot.

Postoperative ambulation is sometimes merely a description of what may consist of sitting up in a chair for some time on the day of operation and every day thereafter. If anything did predispose to abnormal blood clotting, this should. Many patients who have gotten out of bed "early" have been harmed rather than helped. I believe patients must move about for early ambulation to be of benefit. I trust that Doctor Smith's patient was truly ambulatory.

The newer drugs that are coming into use in this field of anticoagulants may help to solve our problem. Heparin is much better than dicumarol, due to its over-all effect on the clotting mechanism. Yet its action is fleeting, and so a prolonged effect is not attainable. There are investigations going on at present with the newer drugs along this line. Dicumarol medication is controlled by the prothrombin time, which is not too satisfactory. After all, prothrombin determinations are indirect measures, and the patient's clotting time might well be different than indicated by the prothrombin determination.

DR. H. O. MCPHEETERS: I would like to compliment Dr. Felder on the fine paper. It was very well prepared and deliberate. What did he say about the percentage of swelling found in his cases?

DR. FELDER: Ninety-three of the cases, or 88.5 per cent.

DR. MCPHEETERS: I am going to take issue with him on the use of lumbar block in the phlebitis case that has a cold, clammy, swollen leg. That type of case will have a fine reaction after a lumbar block. The skin will warm up, and the edema will rapidly disappear.

DR. FELDER: Dr. McPheeters has a much larger and wider experience than I do, and I cannot argue with that experience, but I do know that our patients did well and we did not treat them with sympathetic blocks. Had we done so, their discomfort would have been less probably and we might have changed their course.

DR. C. DENNIS: I would like to say one thing about the simplicity of prophylactic treatment in patients undergoing ileostomy for ulcerative colitis. We don't check the prothrombin time except prior to administration of the drug. With two or three exceptions we have given a single dose of dicumarol. The dose was usually either 200 mgs. or 300 mgs., administered the night before the operation. In twenty cases thus treated, none developed pulmonary embolism or thrombophlebitis. Three patients during this time presented prolonged prothrombin times, and there was enough evidence of liver damage so that dicumarol was not given. All developed one complication after another, and all three died of pulmonary embolism.

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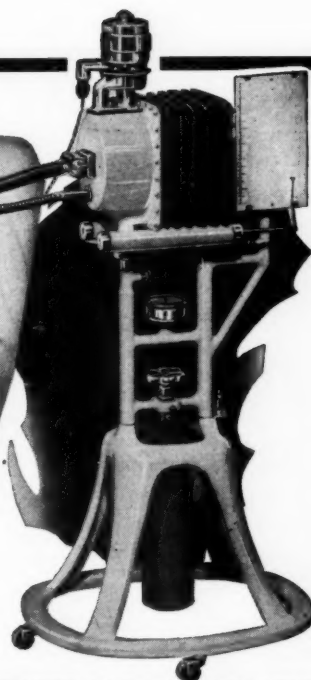
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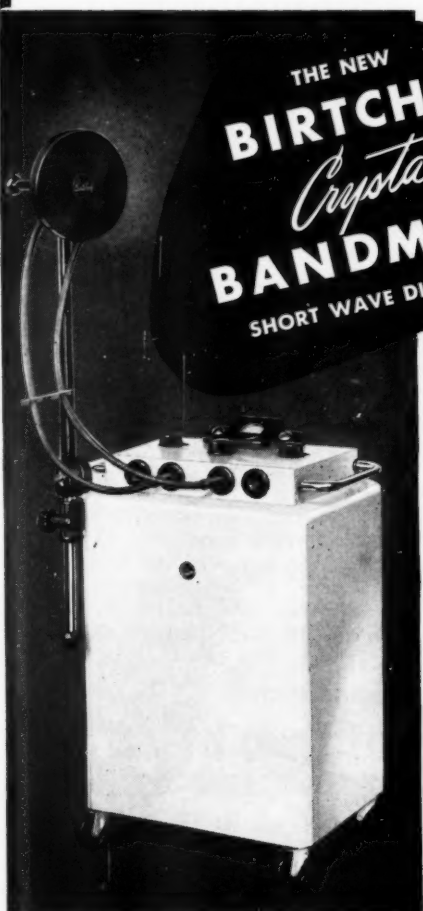
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## ◆ Reports and Announcements ◆

### RADIO PROGRAM

Following are the titles of the broadcast to be presented in "Let's Talk About Health" by Dr. D. A. Duke-low on KUOM, the University of the Air.

1948

- Nov. 1—"Polio" Problems
- Nov. 8—Mental Hygiene
- Nov. 15—Medical Education
- Nov. 22—A Century of Public Health
- Nov. 29—Tuberculosis—The Christmas Seal Story
- Dec. 6—County Health Departments
- Dec. 13—Why Kill Our Children?
- Dec. 20—Your Christmas Presents
- Dec. 27—New Year's Resolutions

### AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY

The seventh annual meeting of the American Academy of Dermatology and Syphilology will be held in Chicago from Saturday, December 4, through Thursday, December 9, 1948.

The principal sessions will be held at the Palmer House, with special courses in histopathology and mycology scheduled for Saturday and Sunday, December 4 and 5, at the Medical Schools of the University of Illinois and Northwestern University. As in the past two years, teaching clinics will be held on the afternoons of Monday, Tuesday, and Wednesday, December 6, 7, and 8. A new feature is being added to the program this year consisting of informal discussion groups, which will be held at noon and 5:00 P.M. sessions.

Officers of the Academy are: President, Dr. Clyde L. Cummer, Cleveland, Ohio; Vice President, Dr. Francis E. Seneor, Chicago, Ill.; and Secretary-Treasurer, Dr. Earl D. Osborne, 471 Delaware Ave., Buffalo, New York.

### AMERICAN ACADEMY OF GENERAL PRACTICE

The first annual meeting of the American Academy of General Practice will be held March 7, 8 and 9, 1949, at the Netherlands Plaza Hotel in Cincinnati, Ohio.

The Congress of Delegates will meet at 10 A.M., Sunday, March 6, 1949, preceding the Assembly, and again on Tuesday afternoon, March 8. Scientific papers will be presented on Monday and Tuesday and on Wednesday morning. The presidents and secretaries of the constituent state chapters will meet at dinner on Monday evening, and the banquet will be held on Tuesday evening.

No registration fee will be required of members. Non-members are welcome to attend the sessions and will be charged a registration fee of \$5.00.

Members wishing to make reservations may write Chairman, Subcommittee on Hotels, American Academy of General Practice, Dixie Terminal Building, Cincinnati 2, Ohio.

### MINNESOTA HEART ASSOCIATION

Members of the Minnesota Heart Association automatically become members of the American Heart Association and receive the monthly publication, "Modern Concepts of Cardiovascular Disease" published by the latter association. Membership dues are annual, \$5.00; sustaining, \$25.00; contributing, \$100; and patron, \$1,000. Members of the association are entitled to attend scientific sessions of the association without additional cost.

Physicians willing to display a heart-shaped plastic coin collection device in their reception rooms during the state and national heart fund campaign, February 7-28, 1949, to provide funds for research and education in cardiovascular disease, a fund-raising method approved by the House of Delegates at the last State Medical Association meeting, should communicate with Dr. Paul F. Dwan, president of the Minnesota Heart Association, 2000 Medical Arts Building, Minneapolis 2, Minnesota. Already, scheduled under "sponsorship" of the Heart Association is a two-day continuation course in cardiovascular disease to be held at the University of Minnesota, February 14 and 15, 1949.

### ST. LOUIS COUNTY SOCIETY

The first meeting in the 1948-49 season of the St. Louis County Medical Society was held in St. Mary's Hospital, Duluth, on September 9.

Included in the business session of the group was a report by Dr. L. A. Barney, Duluth, chairman of a committee studying county medical fees. During the scientific session, a motion picture, "Problem Child," produced under the authority of the American Academy of Pediatrics, was shown. Dr. R. O. Bergan, Duluth, served as moderator during the showing of the film. In charge of the meeting was Dr. P. S. Rudie, Duluth, president of the organization.

### SOUTHWESTERN MINNESOTA SOCIETY

The Southwestern Minnesota Medical Society held its annual series of scientific meetings this fall at Worthington. Evening meetings were held each week from September 13 to November 1 and were addressed by Dr. Lyle Hay, Chief Surgeon, Veterans Hospital, Minneapolis; Dr. Arnold Kremen, University Medical School; Dr. Francis W. Lynch, Saint Paul; Dr. John F. Pohl, Minneapolis; Dr. Lee Forrest Hill, Des Moines, and Dr. T. R. Fritsche, New Ulm.

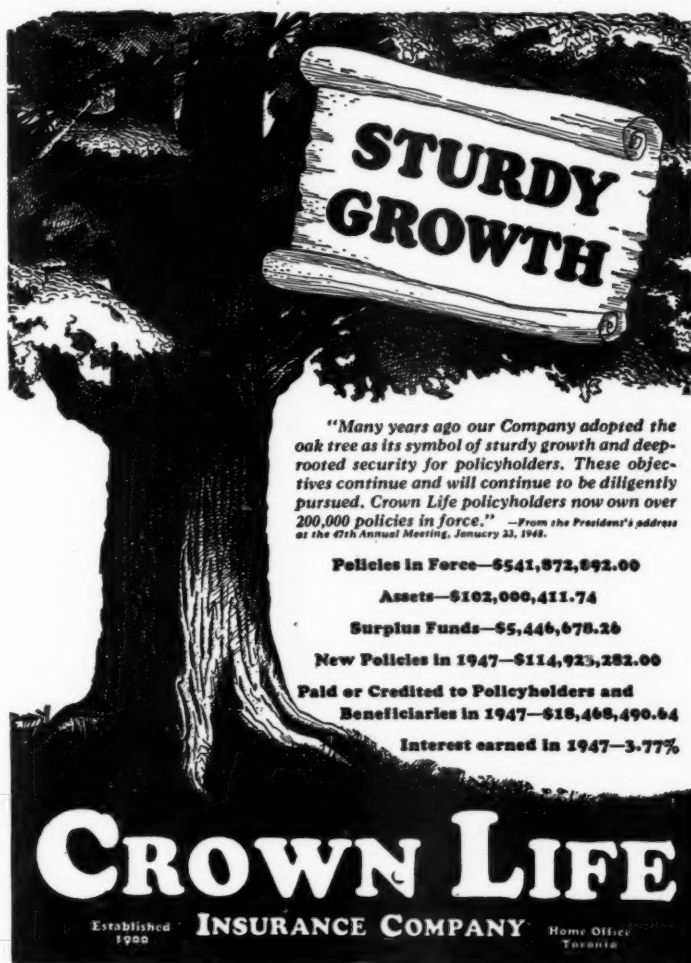
### WABASHA COUNTY SOCIETY

The eightieth annual meeting of the Wabasha County Medical Society was held in Lake City on October 7, with thirty persons, including members' wives and guests, in attendance.

The following officers were elected at a business session of the group: Dr. T. G. Wellman, Lake City, president; Dr. L. M. Ekstrand, Wabasha, vice president;

(Continued on Page 1256)





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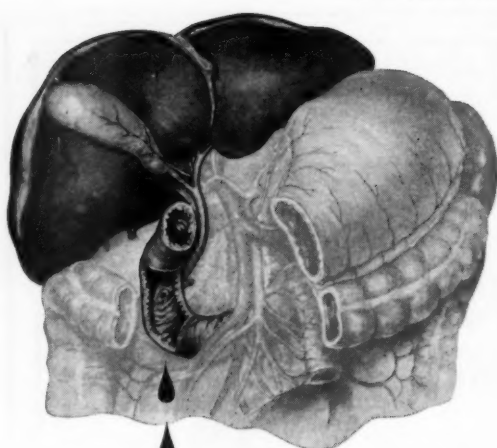
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\*Albrecht, F. K.: Modern Management in Clinical Medicine, Baltimore, The Williams and Wilkins Co., 1946, p. 170.



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and Dr. W. F. Wilson, Lake City, secretary-treasurer. Dr. E. C. Bayley, Lake City, was elected as delegate to the Minnesota State Medical Association, with Dr. R. A. Glabe, Plainview, as alternate. Named as censor for three years was Dr. B. J. Bouquet, Wabasha, while censors holding over were Dr. T. G. Wellman, Lake City, and Dr. E. W. Ellis, Elgin. It was decided to hold the next annual meeting at Plainview.

The evening program consisted of the following: the President's Address, "Pericarditis," by Dr. R. N. Bowers, Lake City; a talk on "Relations of the Medical Profession to National Defense," by Dr. Jan H. Tillisch, Rochester; and a motion picture entitled "Energy Release from Food," presented by the Upjohn Company.

### UPPER MISSISSIPPI SOCIETY

The summer meeting of the Upper Mississippi Medical Society, held at Birchmont Lodge, Bemidji, on September 11, was attended by thirty physicians. In charge of the meeting were Dr. D. H. Garlock, Bemidji, president of the society, and Dr. G. I. Badeaux, Brainerd, secretary.

The following papers were presented on the scientific program: "The Physiologic Approach to the Treatment of Nasal Conditions," by Dr. C. L. Oppegaard, Crookston; "Cancer of the Colon," by Dr. Lloyd A. Whitesell, Minneapolis; "Hematic Reactions Following Drug Therapy," by Dr. William A. Coventry, Duluth; and "Acute Conditions of the Gastrointestinal Tract," by Dr. William V. Knoll, Duluth.

### WASHINGTON COUNTY SOCIETY

At the Washington County Medical Society meeting, September 14, 1948, a lively discussion took place on the proposal of the Washington County Welfare Board to reduce the fee for doctors' hospital calls on welfare patients from \$1.25 to \$1.00 per call. This constitutes a reduction from the \$1.25 for similar services allowed by the Division of Social Welfare of the State of Minnesota, and both fees are much below the minimum fee schedule of the Washington County Medical Society and other county societies in the state. The society voted unanimously to decline the reduction, and a letter was sent to the Washington County Welfare Board, as a notification of this action, explaining that such fees are out of line with costs for less important services, such as changing a tire or replacing a washer on a faucet.

Dr. William Bernstein of Saint Paul gave an illustrated talk on "Proctological Conditions of Interest to the General Practitioner."

At the meeting held October 12, 1948, the Society voted to accept the proposal of the Red Cross to establish a blood bank in Saint Paul.

Dr. James Edward Jenson, who has recently become associated with Dr. J. W. Stuhr, was elected to membership in the society.

Society members enjoyed an interesting address by Dr. Roger Howell, associate professor of psychiatry at the University of Minnesota on the subject, "Psychosomatic Medicine."

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## ◆ Woman's Auxiliary ◆

### HEALTH DAYS PROFITABLE IN MINNESOTA THIS FALL

**Mrs. Harold F. Wahlquist**

Health Days have been very profitable and fashionable in Minnesota this fall. As president of the State Auxiliary, I have had the privilege of representing our members at meetings in Willmar, Fergus Falls, Crookston, Mankato, and Duluth. Hundreds of citizens from counties in these trade areas flock to High School or Armory auditoriums to hear talks and partake in discussions of their local health problems. Health Days were co-sponsored by the State Auxiliary, the State Medical Association and the State Department of Health. The programs were planned, with the assistance of local committees, to include discussions of health problems particularly relating to immediate community needs. Gov. Luther Youngdahl was a featured speaker at the evening meetings. It is our hope that Mrs. Hobart Johnson, state public relations chairman, will assist in evaluating these meetings for our next issue.

Two County Auxiliaries have joined our forces this fall. McLeod County was organized September 16, with Mrs. A. M. Jensen of Brownton as president, and Clay-Becker, October 6, with Mrs. C. W. Moberg of Detroit Lakes as president. Both Auxiliaries have planned challenging programs for this year, and we are delighted to have them as part of our State Auxiliary.

The following members have been ratified as state standing committee chairmen for the year 1948-49:

**Regional Advisers:** Mrs. C. C. Allen, Austin, first district; Mrs. S. A. Slater, Worthington, second; Mrs. O. B. Fesenmaier, New Ulm, third; Mrs. A. A. Passer, Olivia, fourth; Mrs. C. Harry Ghent, Saint Paul, fifth; Mrs. Frederick H. K. Schaaf, Minneapolis, sixth; Mrs. R. N. Jones, Saint Cloud, seventh; Mrs. C. L. Oppegaard, Crookston, eighth; Mrs. Anthony J. Bianco, Duluth, ninth.

**Advisory Committee:** Mrs. Martin Nordland, Minneapolis; Mrs. E. V. Goltz, Saint Paul; Mrs. J. F. Norman, Crookston; Mrs. M. A. Nicholson, Duluth; Mrs. Melvin Henderson, Rochester.

**Committee Chairmen:** Mrs. Howard Satterlee, Lewiston, Archives; Mrs. W. H. Von Der Weyer, Saint Paul, Bulletin; Mrs. Mark E. Ryan, Saint Paul, Cancer; Mrs. Benjamin Souster, Saint Paul, Editor—MINNESOTA MEDICINE; Mrs. Bernard O'Reilly, Saint Paul, Emergency Nursing; Mrs. Joseph M. Neal, Saint Paul, Finance; Mrs. C. L. Sheedy, Austin, Hygeia; Mrs. Elmer Rusten, Wayzata, Legislation; Mrs. Harlow Hanson, Minneapolis, Medical and Surgical Relief; Mrs. H. E. Bakkila, Duluth, Organization; Mrs. N. O. Pearce, Minneapolis, Press and Publicity; Mrs. A. Christiansen, Saint Paul, Printing; Mrs. David Halpern, Brewster, Program and Health Education; Mrs. Hobart Johnson, Mankato, Public Relations; Mrs. F.

W. Franchere, Lake Crystal, Resolutions; Mrs. Neil Dungay, Northfield, Revisions; Mrs. O. I. Sohlberg, Saint Paul, Mrs. Karl Wold, Saint Paul, Mrs. W. N. Graves, Duluth, Mrs. M. McC. Fischer, Duluth, Mrs. A. N. Bessesen, Jr., Minneapolis, Mrs. A. E. Cardle, Minneapolis, Mrs. L. P. Powell, Rochester, Social.

**Special Committees:** Mrs. Leonard S. Arling, Minneapolis, News Letter; Mrs. Walter K. Haven, Minneapolis, Workshop; Mrs. Harold G. Benjamin, Saint Louis Park, Roster; Mrs. S. S. Hesselgrave, Center City, Parliamentarian.

**State Medical Advisory Council:** Dr. Gaylord Anderson, Saint Paul; Dr. R. N. Barr, Minneapolis; Dr. Reuben Erickson, Minneapolis; Dr. Fred Magney, Duluth; R. R. Rosell, Saint Paul.

### HEALTH WORKSHOP HELD SEPTEMBER 24

**Mrs. Leonard Arling**

Minnesota physicians' wives held an all-day Workshop, September 24, at the Hotel Radisson, to perfect themselves in their role of medical public relations workers.

Urged by Dr. A. E. Cardle, president of the Minnesota State Medical Association, to refrain from putting Auxiliary work on a "tea party level," and to inform themselves to "speak upon such issues as socialized medicine," they were told that the government has spent \$75,000,000 trying to indoctrinate the people of this country with the idea of socialized medicine and that only through the efforts of those far-sighted enough to realize the inevitable results of compulsory health insurance, will the idea be defeated.

Amplifying the responsibilities of the Auxiliary, Lawrence W. Rember, executive assistant, American Medical Association, declared, "Personal contact is not enough. You must employ the channels of mass communication."

"Raise your voice, cast your ballot," he continued. "Make sure the voice of medicine is speaking as one." Mr. Rember advocated state medical journals and other publications as good sources of information and complimented the Minnesota Auxiliary on its Workshop plan—"the first I've heard of anywhere in the nation."

He added that the Auxiliary had assumed national importance as a pioneer in public relations work through the leadership of Mrs. Harold F. Wahlquist, who retired from her post as national chairman of public relations to accept the State Auxiliary presidency.

The women were asked by Reuben F. Erickson, M.D., chairman of the Minnesota State Medical Association's Committee on Public Policy, to adopt the committee's five-point program: (1) information and education for the public, (2) co-operation with other professional and lay groups, (3) encouragement of agencies promot-



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## WOMAN'S AUXILIARY

(Continued from Page 1258)

ing voluntary prepayment for sickness insurance, (4) opposition of all legislation injurious to the best type of medical practice in Minnesota, and (5) uniting in the promotion of legislation which will further the best type of medical and hospital care.

Dr. Erickson specified four points to consider in prepayment plans for sickness insurance: free choice of physician, the doctor-patient relationship, highest type medical care, representation of physicians on the governing board.

Round tables on Auxiliary organization techniques closed the morning session and, following the luncheon, the Auxiliary resumed general sessions with a panel discussion on "Mediums for Furthering the Community Health Program." Miss Margaret Reagan, director of public relations, Minnesota Hospital Service, and Minnesota Medical Service Associations, moderated the discussions. Participants were: Gisela Konopka, University of Minnesota professor; Otto Silha, promotion manager, Minneapolis *Star-Tribune*; Ben Leighton, KSTP; Thomas G. Hull, Ph.D., director, Bureau of Exhibits, American Medical Association; William Griffiths, director, public health education, Minnesota Department of Health; Paul C. Leck, M.D., chairman, committee on Rural Medical Service, Minnesota State Medical Association.

At the dinner meeting, Auxiliary members were guests of the State Medical Association and heard John O. Christianson, D.Sc., superintendent of the University of Minnesota's School of Agriculture, describe his recent European tour. Briefly noting conditions abroad, Dr. Christianson defined Communism as "a mental disease." "We must keep ourselves strong," he asserted. "We have so much to learn and so little time left."

Mrs. Luther H. Kice, national Auxiliary president, commended the organization for its "eager and serious efforts on behalf of the medical profession" and told members of the Auxiliary that "the eyes of the world are on this organization."

### ROUND-TABLE DISCUSSIONS INCLUDED IN WORKSHOP

Mrs. David J. Halpern

Seeking the means for a firmer relation between the medical profession and the public, Auxiliary members held a round-table discussion on Program and Health Education during the day-long Auxiliary Workshop, September 24.

At the session the women resolved to become acquainted with every doctor's wife in their communities and to equip themselves with information concerning the medical profession. Typical of the information necessary, it was agreed, are the following: medical and health legislation, national health problems, mental hygiene clinics in rural areas, prepayment health plans, the AMA ten-point program, use of animals in medical experimentation, programs of national health organizations, such as tuberculosis, infantile

paralysis and cancer, the rural health program of the Medical Association.

Sources of such information were listed as: packet sent to all County Auxiliaries, complete condensation of legislation of the 80th Congress, *Hygeia* magazine, the *Bulletin of the Woman's Auxiliary to the American Medical Association*, the *News Letters* sent by Mrs. Wahlquist and her committee.

Two programs which the women felt deserved their immediate attention were: the recruitment of nurses and the promotion of a radio-speaking project for junior and senior high school students on "What You Can Do About Tuberculosis." (The ten best scripts will be broadcast over WCCO and local stations.) Recruitment of nurses may be implemented by radio programs, posters, literature to counsellors in high schools, movies, sponsoring of scholarships, distribution of new brochure available from the Minnesota Nurses Association. Doctors' wives are planning teas at local hospitals, with tours to follow and agreed to seek the co-operation of druggists, the Farm Bureau, and other groups and organizations.

### SOUTHWESTERN AUXILIARY HOLDS SIX-COUNTY MEETING

Mrs. O. M. Heiberg

The Auxiliary to the Southwestern Minnesota Medical Society invited members of the Business and Professional Women's Club, the American Association of University Women and the League of Women Voters from this six-county area, as well as nurses from the Ninth District Nurses Association to hear Mrs. Elmer Rusten of Minneapolis speak on October 11, on important health legislation. A social hour followed. Among the guests of honor were: Mrs. Harold F. Wahlquist, president of the Woman's Auxiliary to the Minnesota State Medical Association, and Mrs. C. C. Allen of Austin, regional adviser, first district.

The responsibility for planning and providing adequate hospital facilities for the tuberculous is a public, not a private obligation.—A. W. Fiske (Ohio State Representative) *Ohio Pub. Health*, September, 1948.

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## In Memoriam

### ANDREW B. RIVERS

Dr. Andrew B. Rivers, fifty-three years old, died suddenly of a heart attack, October 3, 1948, while attending Mass at St. Mary's Hospital chapel.

Dr. Rivers was a native of Rollingstone, in Winona County, where he was born December 10, 1894. He entered the Mayo Foundation as a fellow in medicine, January 15, 1920, and was appointed first assistant in medicine, July 1, 1923. Later he was named associate in medicine, his main interest being gastroenterology.

He attended St. Francis College, St. Francis, Wisconsin, from 1906 to 1913, and received the M.D. degree in 1917 from Creighton University. He served as an intern at the City and County Hospital in Saint Paul until October, 1918, when he entered the medical corps of the United States Navy as a lieutenant and was stationed at the marine barracks at Norfolk, Virginia.

After the war, Dr. Rivers was an assistant in medicine at the University of Minnesota until he came to Rochester in 1920.

In World War II, Dr. Rivers commanded the medical battalion of the Minnesota defense force with the rank of lieutenant colonel. Functioning with the medical battalion was the nurse corps battalion including units in Minneapolis, Saint Paul, Duluth and Rochester.

He was appointed commanding officer of the state battalion by Adjutant General E. A. Walsh.

Close friends of Dr. Rivers included prominent Notre Dame football coaches, the late Knute Rockne, Hunk Anderson and Frank Leahy, present coach.

In 1929, he received the degree of M.S. in medicine from the University of Minnesota and of M.A. from St. Francis College in 1930. He was a fellow of the American College of Physicians and American Medical Association and member of the American Gastro-Enterological Association, Olmsted-Houston-Fillmore-Dodge County Medical Society, and the Minnesota State Medical Association. He was also a member of the Clinical Research Club, Sigma Xi, Phi Beta Pi and Alumni Association of the Mayo Foundation.

In November, 1927, he married Madalyn D. Smith of Hillsboro, Texas. Mrs. Rivers survives him; also a daughter, Marilyn, student at the University of Minnesota, and a sister, Angela Rivers, of Rollingstone.

### LUDVIG R. LIMA

Dr. Ludwig R. Lima of Montevideo, Minnesota, died of a heart attack on September 4, 1948, at his home.

Dr. Lima was born at Stavanger, Norway, on April 30, 1877. At the age of seventeen, he came to this country to join two brothers who were farming near Coopers-

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## IN MEMORIAM

town, North Dakota. He received his education at Sandness, Norway, and at Augsburg College in Minneapolis, where he received the degree of B.A. in 1899. He graduated from Hamline Medical College in 1903 and interned at the City and County Hospital in Saint Paul.

On September 25, 1904, he was married to Constance Bergh at Audubon, Minnesota, and practiced for a year at Everett, Washington. He then located at Montevideo. Three years later he spent a year in postgraduate study in Vienna. During World War I, he served in the army medical corps. Dr. Lima was a member of the Camp Release Medical Society, the Minnesota State and American Medical Associations.

He is survived by his widow, a son, Dr. L. R. Lima, Jr., of Montevideo, and two daughters, Mrs. William Owens of Montevideo and Mrs. Brunhild Brown of Minneapolis.

### JOHN THEODORE SCHLESSELMAN

Dr. J. T. Schlesselman of Mankato, Minnesota, died suddenly from a heart attack on September 6, 1948. He had been a prominent eye, ear, nose and throat specialist and civic leader for many years.

Dr. Schlesselman was born in Reynolds, Indiana, January 21, 1877. He obtained a B.S. degree from Concordia College, Fort Wayne, Indiana, in 1890, and his M.D. degree from the Cleveland University of Medicine and Surgery in 1898. His internship was served at the Huron Street Hospital in Cleveland.

From 1900 to 1920, he practiced at Good Thunder,

Minnesota, taking postgraduate work in the Chicago Eye, Ear, Nose and Throat College in 1914, at the New York Postgraduate Medical School in 1915, at the Manhattan Eye, Ear, Nose and Throat College in 1919. In 1926 he spent three months in Vienna.

Dr. Schlesselman was president of the Southern Minnesota Medical Association in 1931 and a former president of the Blue Earth County Medical Society.

In July, 1948, he completed fifty years of practice.

Dr. Schlesselman was married on September 3, 1903, to Elsa Darge, who survives him, as do also two sons, Harold R. Schlesselman of Mankato and Dr. Edward A. Schlesselman of Fresno, California. A brother, George H. Schlesselman, practices in Anoka.

Dr. Schlesselman was much interested in reforestation and was considered an authority on the subject. He was active in Mankato community affairs, having served as president of the Mankato Chamber of Commerce in 1936 and 1937, and as president of the Mankato Lions Club in 1931 and 1932. He was a member of the Lutheran Church.

### DAVID L. TILDERQUIST

Dr. David L. Tilderquist, a physician in Duluth for the past forty-four years, died September 29, 1948, at the age of seventy-six.

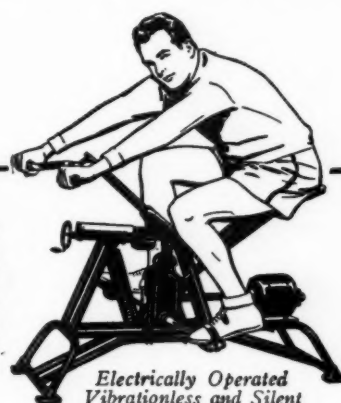
Born in Vasa, Minnesota, October 22, 1871, Dr. Tilderquist attended Gustavus Adolphus College and the University of Minnesota, where he received his medical degree in 1903. In 1910, he took postgraduate work in

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## IN MEMORIAM

Vienna. He served as chief of the eye, ear, nose and throat services at Saint Luke's and Saint Mary's Hospitals in Duluth.

Dr. Tilderquist belonged to the Saint Louis County Medical Society, the Minnesota State and American Medical Associations, was a member of the American Academy of Ophthalmology and at the time of his death was vice president of the Minnesota Academy of Ophthalmology. He was also a past president of the organization.

He was active in church work and served on the board of foreign missions of the Augustana Lutheran church. For his contributions to special scholarship funds at Gustavus Adolphus College, he was presented with the Greater Gustavus Association award.

Dr. Tilderquist is survived by three sisters, Eva and Ida of Duluth and Mrs. Ernest Rupert of Seattle, Washington.

### MELVIN A. VOGTEL

Dr. Melvin A. Vogtel, of Minneapolis, passed away August 30, 1948, at the age of fifty-eight.

Dr. Vogtel was born in New Ulm, September 26, 1891. After graduating from Rush Medical College in 1916, he practiced in Winthrop, Minnesota, for two and a half years before moving to Minneapolis.

He was a member of the Hennepin County Medical Society, the Minnesota State and American Medical Associations, and Phi Gamma Delta, undergraduate medical society.

Dr. Vogtel married Beatrice Black in Chicago on June 10, 1916. He is survived by his widow, his

mother, Mrs. Charles Vogel of New Ulm, a daughter, Mrs. Gerhard Becker of Chicago, and a brother, Harold Vogel of Fort Worth, Texas.

### MORRILL EDWIN WITHROW

Dr. M. E. Withrow, for forty-five years a practitioner at International Falls, Minnesota, died October 12, 1948. He was seventy-eight years of age.

Dr. Withrow was born in Stillwater, August 21, 1870. He obtained his M.D. degree at Hamline Medical School in 1897, and interned at the Minnesota State Prison for two years. He practiced for nine months at Forest Lake, Minnesota, and at Grantsburg, Wisconsin, for a brief period before moving to International Falls in 1903.

He was one time mayor of International Falls and had been health officer since 1908. He was also active in State American Legion affairs and in the Masonic Order. He was a member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations.

Dr. Withrow was married to Agatha Mahoney of Anoka. He is survived by his wife, three sons and three daughters.

### ERRATUM

Through a regrettable error, we reported in our September issue the death of Dr. Arthur J. G. Henderson of North Saint Paul. We hasten to correct the report, for Dr. Henderson is very much alive. Our apologies are extended to Dr. Henderson. We hope he will sustain no serious embarrassment as the result of our error.

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## Communication

### FEE SCHEDULE

At the request of Dr. Donald McCarthy, Retiring Branch Medical Director of the Veterans Administration, we are publishing a letter written by Dr. Paul B. Magnuson, Chief Medical Director of the Veterans Administration, to Dr. Morris Fishbein, Editor of *The Journal of the American Medical Association*, dated April 27, 1948. The letter appeared in *The Journal of the American Medical Association* of May 22, 1948. It explains the difficulty in establishing a fee schedule satisfactory to physicians throughout the country and to the Veterans Bureau and how the schedule was finally established, and disclaims charges that the Bureau was arbitrary in adopting a schedule.

### VETERANS ADMINISTRATION

Washington 25, D. C.

April 27, 1948

Dr. Morris Fishbein  
Editor, *The Journal AMA*  
535 North Dearborn Street  
Chicago, Illinois

Dear Dr. Fishbein:

It has come to my attention that considerable misunderstanding has developed throughout the medical profession concerning the establishment of fees for medical

services to be paid private physicians participating in the so-called "Home Town Medical Care Program for Veterans." It has been contended that the Veterans Administration has arbitrarily established a Fee Schedule which represents the maximum amount which may be paid for any given service and which is, in effect, a National Fee Schedule. It has also been contended that the various State Medical Societies and other interested groups were not consulted when the Fee Schedule was adopted.

In order to clear up any misunderstanding regarding this matter, it is desired to emphasize that my predecessor Dr. Paul R. Hawley, had no intention at any time of establishing a National Schedule of Fees, nor do I contemplate doing so. However, the Fee Schedules originally submitted by the various State Medical Societies, when the "Home Town Medical Care Program" was inaugurated, varied so widely in format, terminology, and fees for similar or identical services, that it was deemed advisable to establish a uniform Fee Schedule Format and to set up tentative fees which could be used as a guide by the various State Medical Societies when submitting their proposals for the furnishing of medical care to veterans.

This uniform Fee Schedule Format was formulated by the Professional Group of National Consultants to the Chief Medical Director. This Group, representing the various specialties in medicine and surgery, is composed of eminent physicians from all parts of the country. Tentative fees were set up in the format after a careful analysis of Pre-Paid Medical Care Plan, Workmen's Compensation and Insurance Fee Schedules, and also the Fee Schedules in effect in the various States having agreements with the Veterans Administration. As was to be expected, considerable variation occurred in the Fee Schedules reviewed.

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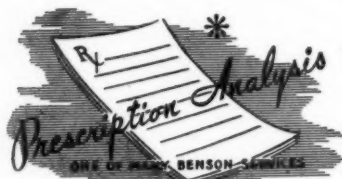
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every effort to arrive at fees that were considered to be within reasonable limits and which would, as nearly as possible, allow a uniform provisional fee schedule for use as a guide in facilitating and expediting the preparation of agreements between State Medical Societies and the Veterans Administration.

Further attempt was made to provide for elasticity in the charges for certain operations or other services which seemed to evoke more than average contention by listing the minimum and maximum amounts considered equitable. These items bear the notation "AA," which indicates that the fee for the given service is to be determined by arbitration and agreement between the Veterans Administration and the Medical Society concerned.

May I reiterate that the Veterans Administration Fee Schedule Format is in no sense to be construed as an arbitrary or National Fee Schedule. Furthermore, it is subject to periodic review and such modification as conditions may indicate.

If it meets with your approval, I would appreciate it very much if you could possibly arrange to publish this as an open letter in the *Journal of the American Medical Association*. I should like this to reach all of the physicians throughout the country, and I know of no better way to do it than through the *Journal*.

Very truly yours,

PAUL B. MAGNUSON  
Chief Medical Director

Health education is recognized as an essential tool in tuberculosis control. The general public must know the seriousness of the disease and its cost in human misery and money before it will accept its responsibility to support the work financially. Report, Expert Committee on Tuberculosis, Office International de'Hygien Publique, Paris, *Pub. Health Rep.*, May 7, 1948.



## ◆ Of General Interest ◆

Dr. Walter Lee, Madison, has been appointed medical advisor for the Lac Qui Parle County draft board.

\* \* \*

Dr. W. R. Humphrey, Stillwater, has returned from Virginia, his native state, where he recently spent a brief vacation.

\* \* \*

The appointment of Dr. P. A. Mattison, Winona, to the Winona board of education was approved by the board at its monthly meeting on September 13.

\* \* \*

At a meeting of the Rotary Club in Wadena, on September 1, the principal speaker was Dr. J. S. Grogan, retired Wadena physician.

\* \* \*

Principal speaker at a meeting of the Range Medical Society in Hibbing on September 29 was Dr. S. S. Houkom, orthopedic surgeon from the Duluth Clinic. Dr. Frank Kochevar, Eveleth, presided at the meeting.

\* \* \*

Dr. Harold R. Hennessy, former resident of Two Harbors, now living in Chicago, was recently appointed to the newly created office of secretary of the AMA Council on National Emergency Medical Service.

Among the speakers at the West Central Minnesota Health Day, held on September 9 in Willmar, was Dr. Harry Evenson of Sacred Heart, who discussed "Health Problems in West Central Minnesota."

\* \* \*

Dr. Arrah Evarts, Rochester, has been appointed state chairman of the health and safety committee of the Minnesota Federation of Business and Professional Women's Clubs, it was announced early in September.

\* \* \*

On September 7, Dr. I. L. Mitby of Aitkin was appointed by the county board of commissioners to serve on the Aitkin-Deerwood Sanatorium board, succeeding the late Dr. M. Frederickson of Aitkin.

\* \* \*

Dr. F. W. Wittich, Minneapolis, was among the speakers who addressed the Medical Society of Delaware at its annual convention, September 14 and 15, at Rehoboth Beach, Delaware.

\* \* \*

Dr. C. L. Oppegaard, Crookston, was the principal speaker at a meeting of the Lions Club in Crookston on September 27. He spoke on two topics, first dis-

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## OF GENERAL INTEREST

cussing various phases of allergic diseases, then commenting on the possibility of having a school for the feeble-minded established in the city.

\* \* \*

In September, Dr. Bjarne Houkom, Minneapolis, sailed for the Orient. He planned to spend three months in Hong Kong before going to Bombay, India, to study eye diseases. Before returning to Minneapolis he will visit in England and the Scandinavian countries.

\* \* \*

Dr. George Janda, formerly of Saint Paul, moved to Bertha late in September to join the staff of the Will Clinic. A graduate of the University of Minnesota Medical School, Dr. Janda recently completed his internship at St. Luke's Hospital, Duluth.

\* \* \*

The largest watermelon in Arkansas, weighing 96 pounds, was sent to Dr. V. S. Counseller, Rochester, in September by a former patient, from whom Dr. Counseller had excised a 50-pound tumor, the largest in his experience.

\* \* \*

Dr. Hanns Schwyzer, son of the late Dr. Arnold Schwyzer of Saint Paul, recently became associated in practice with Dr. Martin Nordland and Dr. Martin A. Nordland at 1737 Medical Arts Building, Minneapolis.

\* \* \*

Principal speaker at a meeting of the Arrowhead Society of Medical Technologists, held in St. Luke's

Hospital, Duluth, on September 30, was Dr. S. H. Boyer, Jr., of Duluth, who spoke on the subject, "Rheumatic Fever."

\* \* \*

Dr. Carl J. Fritsche of New Ulm has been appointed medical advisor for the Brown County Selective Service Board, it was announced on September 25. The appointment was made by the state director of Selective Service.

\* \* \*

One of the speakers at the Red River Valley Health Day, held in Crookston on October 7, was Dr. O. F. Melby, health officer of Thief River Falls, who took part in a panel discussion on "Our Community Health Problems."

\* \* \*

Dr. Luther Nelson, formerly of Wadena and at present a resident physician at Bethesda Hospital, Saint Paul, was married on August 19 to Miss Ellen Olson, a nurse at Abbott Hospital. The ceremony took place in Atwater, Miss Olson's former home.

\* \* \*

Among speakers at the annual membership meeting of the Minnesota Division of the American Cancer Society, held at the University of Minnesota on October 1, were Dr. A. E. Cardle, president of the Minnesota State Medical Association; Dr. Owen H. Wangenstein, head of the University's department of surgery, and Dr. Arthur H. Wells, president of the Minnesota Division.



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## OF GENERAL INTEREST

Dr. John J. Satory, formerly of Wabasha, together with Dr. Paul D. Anderson and Dr. Robert L. Gilbert, have organized the Grandview Clinic in LaCrosse, Wisconsin. Dr. Satory is a graduate of the University of Minnesota Medical School.

\* \* \*

Dr. Lewis B. Wollner of Rochester has been awarded a prize of \$300 for his research on cancer cells 'n bronchial secretion, and Dr. Charles A. Owen, also with the Mayo Foundation, was recently awarded \$150 for research in the conversion of prothrombin into thrombin by the Alumni Association of the Mayo Foundation.

\* \* \*

Dr. Ralph Rossen, medical superintendent at the Hastings State Hospital, spoke to staff members of the Red Wing State Training School at a meeting on September 22. Dr. Rossen discussed the psychiatric study of boys. The meeting was the first of a series of training sessions for the school employees.

\* \* \*

Dr. D. C. Anderson, after practicing in Lamberton for five years, announced late in September that he was moving to Olivia to establish a practice there. His practice in Lamberton was purchased by Dr. Mortin Roan, formerly of Minneapolis, who planned to begin his duties in Lamberton on October 9.

\* \* \*

Dr. O. A. Kabrick, formerly of Jackson, became resident physician at the St. Peter State Hospital early in September. Dr. Kabrick, who has practiced medicine since 1906, was associated with Dr. W. H. Halloran in Jackson for four and a half years before moving to St. Peter.

\* \* \*

Dr. E. L. Tuohy and Dr. Henry G. Moehring, Duluth, conducted a clinico-roentgen-pathological conference at the annual joint fall meeting of the Saint Louis County and Range Medical Societies on October 14. They presented a similar conference at the recent meeting of the Northern Minnesota Medical Association.

\* \* \*

Dr. S. E. Friefeld, radiologist at Wadena since July, 1946, will leave the last week in December to accept a staff position in a Duluth hospital. Dr. Friefeld was associated with the Wesley Hospital in Wadena, and also at hospitals in Breckenridge, Detroit Lakes, Perham, Long Prairie, Thief River Falls and Fergus Falls.

\* \* \*

Dr. H. W. Meyerding, Rochester, gave the presidential address and presented a paper at the fourth Congress of the International Society of Orthopaedic Surgery and Traumatology, held in Amsterdam, Netherlands, during the middle of September. The paper which he presented was written in collaboration with Dr. E. C. Elkins, also of Rochester.

\* \* \*

In Mountain Lake during September, the offices of Dr. P. J. Pankratz and Dr. John R. Schmidt underwent extensive remodeling and enlarging. About 500 square feet of floor space were added by reconstructing part of the building behind the old offices. The additional



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## OF GENERAL INTEREST

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Dr. Earl C. Elkins, consultant in physical medicine at the Mayo Clinic, was named president-elect of the American Congress of Physical Medicine at the twenty-sixth annual meeting of the organization in Washington, D. C., on September 9. He will be inducted as president at the annual meeting in 1949. Dr. Elkins has been a member of the Mayo Clinic staff for ten years.

\* \* \*

Dr. Tracy E. Barber, of the Austin Clinic, has been engaged as the new medical director of the Hormel Company, it was announced on September 7. Dr. Barber succeeds the late Dr. H. B. Allen. A graduate of the Medical College of Temple University, and a naval veteran, Dr. Barber has practiced in Austin since 1946.

\* \* \*

Dr. John F. Fulton, Sterling, professor of physiology at the Yale University School of Medicine, received the decoration of Honorary Officer of the Civil Division of the Most Excellent Order of the British Empire from the British Ambassador to the United States, Sir Oliver Frank, at the British Embassy in Washington, D. C., on July 23, 1948.

\* \* \*

Due to incorrect information, it was stated in the September issue that Dr. Russell J. Kotval, a dentist, was opening a medical-dental clinic in Fairmont with Dr. Jerome L. Behounek, a physician. Further information reveals that Dr. Behounek is a dentist and that Dr. Kotval, a graduate of the University of Minnesota Medical School, is conducting a medical practice at 121½ West Main, Pipestone.

\* \* \*

The second annual meeting of the Minnesota Public Health Conference was held on October 8 at the Saint Paul Hotel in Saint Paul. The main feature of the afternoon session was a panel discussion of "The Establishment of Full-Time Local Health Departments in Minnesota." At the evening banquet the toastmaster was Dr. Mario Fischer, director of public health, Duluth.

\* \* \*

After being associated in practice with Dr. H. B. Ewens in Virginia since 1938, Dr. John S. Siegel an-

nounced on September 8 that he was opening offices in Virginia to conduct a private practice. A graduate of the University of Minnesota in 1937, Dr. Siegel has taken postgraduate work at the Cook County Hospital Graduate School of Medicine, the University of Illinois and the University of Minnesota.

\* \* \*

Dr. Ronald W. Barr, formerly of Sioux Falls, South Dakota, began practice in Hills during the first week of September. At first, while still living in Sioux Falls, he was in Hills for only three days each week but has now moved to the Minnesota community, to conduct a daily practice in a newly constructed office. Previous to Dr. Barr's arrival, Hills had been need of a local physician for several years.

\* \* \*

The first meeting of the thirty-eighth semiannual postgraduate extension course of the Lyon-Lincoln Medical Society was held in Marshall on September 21. The lecturer for the evening was Dr. George Eusterman, Rochester, who discussed diagnosis and treatment of gastrointestinal diseases. At the second meeting of the course, on September 28, Dr. Haddow M. Keith, Rochester, spoke on "Brain Tumors in Children and Allied Neurological Conditions."

\* \* \*

Dr. Philip S. Hench, Rochester, was one of ten physicians and scientists named at a meeting in Chicago on September 16 to a committee which will guide the medical policies of a newly established Arthritis and Rheumatism Foundation. The Foundation will raise funds for research and treatment of arthritis and rheumatic diseases. Dr. Hench is a past-president of the American Rheumatism Association, which sponsored the meeting at which the committee was named.

\* \* \*

Friends of Dr. Andrew Gullixson, Albert Lea, gathered on September 20 to honor the physician and his wife for their many years of service to the community. Dr. and Mrs. Gullixson planned to leave Albert Lea on September 25 to establish permanent residence in Long Mont.

Dr. Gullixson practiced in the Albert Lea area for more than forty years. During the past few years he has lived in semi-retirement, compiling a book about the medical profession in Freeborn County prior to 1900.



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## OF GENERAL INTEREST

A county-wide free immunization clinic for residents of Wilkin County began on September 13 when the first clinic was held at Breckenridge. On successive days for a week, immunization clinics were conducted in other key cities in the county. Smallpox vaccination and immunization for diphtheria, tetanus and whooping cough were available to all persons from six months of age to twenty-one years. The county-wide clinic was the first of a series and will be conducted every five years.

\* \* \*

The Arlington Municipal Hospital announced the appointment of Dr. Milo A. Youel to its surgical staff early in September. A graduate of the University of Minnesota Medical School in 1939, Dr. Youel interned at the U. S. Naval Hospital in San Diego, California, then served overseas in the navy. He has taken post-graduate training in surgery at the University of Minnesota and at the Minneapolis Veterans Hospital. In Arlington he is associated in practice with Dr. Verne Schulberg.

\* \* \*

A former staff member of the Veterans Hospital at St. Cloud, Dr. M. B. Dahle, purchased the practice of the late Dr. A. A. Passer in Olivia and expected to begin practice there on September 15. Dr. Dahle, a graduate of the University of Chicago, served his internship at Asbury Hospital, Minneapolis, and then practiced at a clinic in Glenwood for three years. After four years of military service, he took postgraduate work in Chicago, then began his duties at the St. Cloud Veterans Hospital.

\* \* \*

Dr. and Mrs. E. Q. Ertel, Ellendale, were honored guests at a testimonial banquet on October 6 on their fortieth anniversary of community service. Many close friends and men in the medical profession from surrounding towns were present, and telegrams of congratulation were received from those who were unable to attend. Dr. and Mrs. Ertel were presented with a number of gifts, and the doctor was the recipient of Citizenship Medals from the local Veterans of Foreign Wars and the American Legion Posts.

\* \* \*

In early September the name of the More Clinic in Eveleth was changed to the More-Ewens Clinic, with the staff increased to six physicians and services extended to Eveleth, Virginia and Gilbert. Reason for the change was the combining of the More Clinic with the clinic previously operated in Virginia by Dr. H. B. Ewens. The staff of the More-Ewens Clinic now includes Dr. Ewens, Dr. F. R. Kotchevar, Dr. M. L. Strathern, Dr. W. C. Lovshin, Dr. Alfred Marcia and Dr. Terrance D. Callan. No change has been made in the name of the More Hospital, which is operated by the More Hospital Association, a nonprofit organization.

\* \* \*

It was announced early in September that the AMA Council on Medical Education and Hospitals had approved the University of Minnesota's course in occupational therapy. The first class to complete the course, which requires four and one-fourth years of classroom and technical training, was graduated last June. At the

NOVEMBER, 1948

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Surgical Technique, Surgical Anatomy and Clinical Surgery, four weeks starting November 8, February 7, March 7.

Surgical Anatomy and Clinical Surgery, two weeks, starting November 22, February 21, March 21.

Surgery of Colon and Rectum, one week, starting March 7, April 18.

Surgical Pathology every two weeks.

**GYNECOLOGY**—Intensive Course, two weeks, starting February 21, March 21.

Vaginal Approach to Pelvic Surgery, one week, starting February 14.

**OBSTETRICS**—Intensive Course, two weeks, starting March 7.

**MEDICINE**—Intensive Course, two weeks, starting April 4.

Personal Course in Gastroscopy, two weeks, starting April 18.

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University of Minnesota Hospitals, there is an occupational therapy clinic for hospital patients and outpatients, as well as a bedside occupational therapy service for patients confined to bed. Made available also to psychiatric patients is an extensive occupational therapy program.

\* \* \*

Dr. A. C. Broders, Sr., of the Mayo Clinic, was honored with several scientific and medical memberships in South America on a recent trip. He was made a corresponding member of the Association Medica Argentina and the Asociacion Medica Argentina Sociedad de Anatomia Normal Pathologica, and an honorary member of the Academia Nacional de Medicina de Buenos Aires and the Sociedad de Anatomia Normal Pathologica de Chile. He was also made an honorary member of the faculty of biology and medical sciences of the University of Chile, one of five North Americans to receive this honor.

\* \* \*

From January 1, 1948, through September 28, 1948, the Minnesota Department of Health received reports of 804 cases of poliomyelitis in Minnesota, with 44 deaths. Twenty-seven cases in out-of-state residents, with three deaths, were also reported. About 120 of the cases were reported in July, 335 in August, and 325 in September (1-28). In Hennepin County there were 135 cases, in Faribault 88, in Freeborn 83, in Ramsey 69, in Mower 31, in Steele 27, in Rock 25, in Nobles 23, in Stearns 22, in Anoka 19, and in Wright 17. In past years Minnesota has had 912 cases with 105 deaths in 1916, 955 cases with 145 deaths in 1925, 811 cases with 66 deaths in 1931, and 2,881 cases with 226 deaths in 1946.

\* \* \*

Dr. George Freeman, superintendent of the St. Peter State Hospital for twenty-three years, resigned effective October 1 to become superintendent of the state hospital at Warm Springs, Montana. He was succeeded by Dr. Burton P. Grimes, former assistant superintendent of the St. Peter institution.

Dr. Freeman, in moving to Montana, ends forty-two years of service in Minnesota state institutions. He began his career as a staff member at the St. Peter hospital, later became superintendent of the Willmar State Hospital, and in 1925 assumed the superintendency

of the St. Peter institution. Dr. Grimes, the new superintendent at St. Peter, has served as assistant superintendent since 1946 and was a member of the medical staff from 1937 to 1940.

\* \* \*

Cottonwood County was awarded accreditation certificates for its accomplishments in tuberculosis control at a ceremony in Windom on September 21. Dr. S. A. Slater, superintendent of the Southwestern Minnesota Sanatorium, presented certificates awarded by the Minnesota State Medical Association and the Minnesota Department of Health, while special Christmas Seal plaques were presented by Dr. E. A. Meyerding, executive secretary of the Minnesota Public Health Association. A county is accredited when its tuberculosis death rate drops to an average of 10 or less per 100,000 population for a five-year period and when not more than 15 per cent of its high school seniors react positively to the tuberculin test. Cottonwood is the sixteenth county in Minnesota to be so accredited.

\* \* \*

The Hospital Clinic at Austin has a new member on its staff, Dr. H. P. Limbacher, who is the surgeon for the group. Dr. Limbacher interned at Saint Luke's Hospital, Cleveland, and served a residency at Lakewood City Hospital, Lakewood, Ohio. He served three of his five years in the Army in World War II in the European theater. He has qualified for the American College of Surgeons and the American Board of Surgery having completed a two-year fellowship in general surgery at the Cleveland Clinic and then terminating his training as a surgical resident of the Cleveland State Hospital which is affiliated with the department of surgery of the Western Reserve University. He is a member of Theta Kappa Psi medical fraternity, the Cleveland Academy of Medicine and the Ohio State Medical Association.

\* \* \*

Dr. Thomas J. Kinsella of Minneapolis has been elected president of the Mayo Foundation Alumni Association. He succeeds Dr. E. E. Larson of Los Angeles. Dr. Donald C. Balfour again was named honorary president. The new first vice president is Dr. John M. Fallon, Worcester, Massachusetts, and the new second vice president, Dr. John L. Kleinheksel, Wichita, Kansas. Dr. James F. Weir and Dr. Edward S. Judd, both of Roch-



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ester, return to the offices of secretary, and assistant secretary and treasurer, respectively. Dr. J. Minott Stickney, Rochester, filled the vacancy on the Board of Governors. The five new members of the advisory board whose terms expire in 1951 are Drs. Conrad J. Baumgartner, Beverly Hills, California, Louis D. McGuire, Omaha, Nebraska, Minard Jacobs, Oklahoma City, Oklahoma, George V. Lynch, Oshkosh, Wisconsin, and Harry A. Collins, Des Moines, Iowa.

\* \* \*

Among Minnesota physicians who attended a two-week continuation course in psychosomatic medicine at the University of Minnesota during the latter part of September were Dr. Russel E. Carlson, Stillwater; Dr. Sidney F. Becker, Bemidji; Dr. Donald S. Branham, Albert Lea; Dr. J. L. Baker, Fergus Falls; Dr. R. F. Mears, Northfield; Dr. Rudolph Wilkowske, Owatonna, and Dr. A. F. Risser, Stewartville.

Subjects covered in the course, which was under the direction of Dr. George N. Aagaard, director of postgraduate medical education at the University of Minnesota, included emotional growth and development, child-parent relationships, the concept of normal and neurotic anxiety, the structure and meaning of a neurosis, symptoms of neurotic maladjustment, the psychological aspects of physical disease, and the fundamentals of psychotherapy.

\* \* \*

It was announced early in September that seven Minneapolis physicians had begun practice in the city.

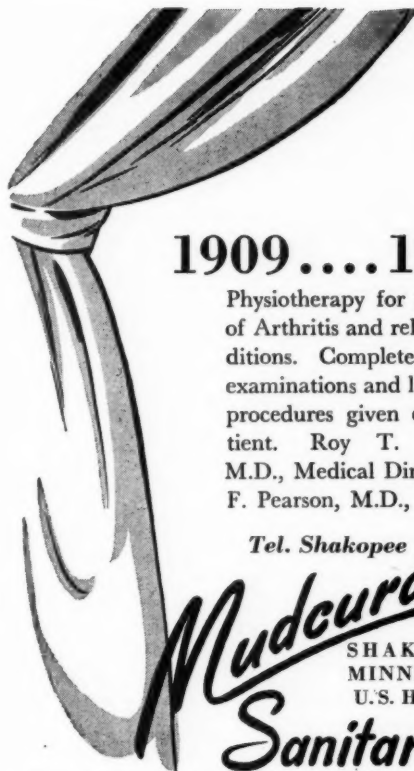
Dr. Martin A. Nordland, after completing a fellowship in surgery at the Mayo Foundation, became associated with his father, Dr. Martin Nordland, with offices at 1737 Medical Arts Building. Dr. Robert F. Deranleau became associated with Dr. Paul N. Larson and Dr. William B. Stromme in the practice of obstetrics and gynecology at 731 Medical Arts Building. Dr. Norman Schneidman, after completing graduate work at the University of Minnesota and the Veterans Hospital, began practice in internal medicine at 701 Physicians and Surgeons Building.

Four other physicians who opened new offices were Dr. Robert W. Cranston, 1009 Nicollet Avenue; Dr. David Gavis, 350 Medical Arts Building; Dr. John W. Johnson, 751 Medical Arts Building, and Dr. Fabian J. McCaffrey, 100 E. Franklin Avenue.

### MINNESOTA DEPARTMENT OF HEALTH

Dr. Frederick W. Behmler, Morris, Stevens County health officer and member of the State Board of Health, was elected first vice president of the Minnesota Public Health Conference at its second annual meeting, held in Saint Paul, October 8. Dr. C. G. Sheppard, Hutchinson, was re-elected as treasurer for a second year. Dr. Hermina Hartig, chief school physician, Minneapolis Public Schools, was named as a member of the executive committee.

Honorary membership in the conference was bestowed upon Dr. Charles Scofield of Benson, in recognition of his long service as a general practitioner of medicine in Minnesota. Dr. Scofield has practiced in



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Dr. J. Lawrence McLeod, Grand Rapids, Minnesota, retiring president, presided at the business session of the Conference and also at the evening session, when he gave the presidential address. Greetings from the Minnesota State Medical Association were presented by Dr. E. M. Hammes of Saint Paul, president-elect of the Association. Dr. D. A. Dukelow of Minneapolis, director, Health Division, Community Chest and Council of Hennepin County, presided at a panel discussion on "Full-time Local Health Departments in Minnesota." Other Minnesota physicians participating in the Conference were Drs. Ruth E. Boynton, A. J. Chesley, George Snyder, and Mario Fischer.

\* \* \*

Many health officers and other physicians in all sections of Minnesota have contributed to the success of the five regional Health Days held this fall, the Minnesota Department of Health reports. Beginning early in September, Health Days have been held in Willmar, Fergus Falls, Crookston, Mankato, and Duluth, under the joint auspices of the medical societies, the women's auxiliaries, and the district offices of the Health Department.

Dr. B. J. Branton, Willmar, was general chairman of West Central Minnesota Health Day, held in Willmar, September 9. Dr. W. L. Burnap, Fergus Falls, Minnesota State Medical Association councilor for the 8th

## OF GENERAL INTEREST

district, was chairman of Park Region Health Day, held in Fergus Falls, September 29. Red River Valley Health Day, which took place in Crookston, October 7, was presided over by Dr. R. O. Sather, who is secretary of the Red River Valley Medical Association. Visitors were officially welcomed to Red River Valley Health Day by Dr. M. J. Bechtel, Warren, president of the medical society in that district.

In Mankato, where South Central Minnesota Health Day was held on October 13, Dr. A. G. Liedloff presided, and Dr. A. E. Sohmer gave an address of welcome. Dr. Liedloff is director of District Unit No. 2, Minnesota Department of Health. Dr. Sohmer is counselor for the 4th district, Minnesota State Medical Association. Dr. P. S. Rudie of Duluth, president of the St. Louis County Medical Society, presided at the Northwestern Minnesota Community Health Day, held in Duluth, October 15.

Other physicians who gave talks or participated in panel discussions at the various Health Days included the following:

*West Central:* Dr. F. W. Behmler, Morris, Stevens County health officer and member of the State Board of Health; Dr. W. W. Yeager, Marshall, Lyon County health officer; Dr. B. O. Mork, Jr., Worthington, director, district Health Unit No. 5; Dr. Kathleen Jordan, Granite Falls; Dr. Stanley Lindley, superintendent, Willmar State Hospital; Dr. Lloyd Gilman, Willmar,

president, Kandiyohi-Swift-Meeker County Medical Society; Dr. A. E. Cardle, Minneapolis, president, Minnesota State Medical Association.

*Park Region:* Dr. Edward Dyer Anderson, Minneapolis; Dr. Ruth Hill, Moorhead; Dr. H. B. Thompson, Fergus Falls; Dr. Lillian Parsons, Elbow Lake; Dr. James Oliver, Moorhead, president, Clay-Becker Medical Society; Dr. C. O. Estrem, Fergus Falls; Dr. I. E. Bigler, Perham.

*Red River Valley:* Dr. O. D. Mellby, health officer, Thief River Falls; Dr. M. O. Oppegaard, mayor of Crookston.

*South Central:* Dr. B. P. Grimes, superintendent, St. Peter State Hospital; Dr. C. G. Sheppard, Hutchinson, McLeod County health officer; Dr. A. D. Mattson, St. James; Dr. Paul C. Leck, Austin, chairman, Rural Health Committee, Minnesota State Medical Association; Dr. F. F. Callahan, Saint Paul, chief of Medical Services unit, Division of Social Welfare; Dr. A. F. Dysterheft, Gaylord, Sibley County health officer; Dr. Paul Dwan, Minneapolis, president, Minnesota Heart Association; Dr. E. E. Novak, New Prague, Le Sueur County medical advisory committee and member of the Board of Regents, University of Minnesota.

*Northeast:* Dr. L. R. Gowan, Duluth; Dr. R. H. Pumala, Cloquet; Dr. J. D. Van Valkenberg, Floodwood; Dr. F. R. Kotchevar, Eveleth; Dr. John K. Butler, Carlton; Dr. Clarence Jacobson, Chisholm; Dr. E. L. Tuohy, Duluth; Dr. G. A. Hedberg, superintendent of Nopeming sanatorium; Dr. W. S. Neff, Virginia.

Also contributing to one or more Health Day programs were Dr. A. J. Chesley, executive officer, Minnesota State Board of Health; Dr. Gaylord W. Anderson, director of the School of Public Health, University of Minnesota; Dr. Mario Fischer, director of the Duluth Health Department and of Health District No. 4; Doctors Robert N. Barr, Helen Knudsen, A. B. Rosenfield, and Dean S. Fleming, of the State Department of Health staff; and Dr. Donald A. Dukelow, director of medical services, Minneapolis Council of Social Agencies.

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Applications received for Blue Shield to Sept. 30, 1948....	90,132
Blue Shield cases paid, Sept. 1-Sept. 30, 1948.....	433
Total for 1948.....	1,847
Paid on Blue Shield cases, Sept. 1-Sept. 30, 1948....	\$16,391.14
Total for 1948.....	\$68,968.61

During the last few months, the growth of Blue Shield in Minnesota has been truly great. Along with the increased number of Minnesota citizens protected by Blue Shield there has been an increase in the number of services for which allowances have been made as well as the amount allowed. As a result of these increases the Blue Shield has had many compliments. These "sunshine letters" have been written on expensive bond letterheads, on inexpensive ten-cent store tablets, and one very flowery and colorful thank-you card has been received. Irrespective of what the writing material consists of, the one theme goes like this:

"When we were suddenly stricken with illness in our family, we were very glad we had Blue Shield. I wish to thank you very much for the very generous allowance you made to our doctor and also for the prompt attention given my case."

Letters of this sort are deeply appreciated, and it is felt that these "sunshine" letters should be passed on to the persons responsible, namely—the physicians of Minnesota who are supporting the Blue Shield. The Blue Shield office may be set up to operate with the utmost efficiency, but it cannot do so without the aid of the physicians, and the office is getting this aid.

The Blue Shield subscriber appreciates the physicians' showing the Blue Shield allowance on the statement, billing the limited subscriber for the balance due, or in the case of the unlimited subscriber, sending a statement indicating that the Blue Shield allowance is payment in full. They appreciate the fact that their own family doctor or the doctor to whom they are referred by the family doctor is a Blue Shield participating doctor of medicine, for they feel that if the doctor whom they respect and admire is back of a plan to which they have subscribed, it is worth while. Thus, actually "sunshine" letters received in the Blue Shield office are not thanking the office personnel, but are expressing their thanks to the people behind the Blue Shield—the doctors of Minnesota.

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## BOOK REVIEWS

### BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

**YOUR BABY.** Gladys Denny Shultz, contributing editor, Ladies' Home Journal, and Lee Forrest Hill, M.D., former president, American Academy of Pediatrics. 278 pages. Illus. Price \$3.50, cloth. New York: Doubleday & Co., 1948.

**OCCUPATIONAL THERAPY SOURCE BOOK.** Edited by Sidney Licht, M.D. 90 pages. Price \$1.00, cloth. Baltimore: Williams & Wilkins Co., 1948.

**ESSAYS IN BIOLOGY.** Presented to Arthur Neville Burkitt. A collection of essays written by some of his pupils to celebrate his completion of twenty-one years as Head of the Department of Anatomy, University of Sydney. 163 pages. Illus. Paper cover. Australia: Australasian Medical Publishing Co., Ltd., Glebe, New South Wales, 1948.

**HUMAN BIOCHEMISTRY.** Second edition. Israel S. Kleiner, Ph.D. Professor of Biochemistry and Director of Department of Physiology and Biochemistry New York Medical College, Flower and Fifth Avenue Hospitals; formerly Associate, the

Rockefeller Institute for Medical Research, New York. 649 pages. Illus. Price \$7.00, cloth. St. Louis: C. V. Mosby Co., 1948.

**TECHNIQUE OF TREATMENT FOR THE CEREBRAL PALSY CHILD.** Paula F. Egel, Cerebral Palsy Director, Children's Hospital, Buffalo, N. Y. 203 pages. Illus. Price \$3.50, cloth. St. Louis: C. V. Mosby Co., 1948.

**PHYSICIAN'S HANDBOOK.** Fifth Edition. John Warkentin, Ph.D., M.D., and Jack D. Lange, M.S., M.D. 293 pages. Illus. Price \$2.00, flexible binding. Palo Alto, California: University Medical Publishers, 1948.

**SYMPOSIA ON NUTRITION.** Volume 1, Nutritional Anemia. Edited by Arthur Lejwa. 194 pages. Illus. No charge. Cincinnati: Robert Gould Research Foundation, Inc., 1948.

**FUNDAMENTALS OF CLINICAL NEUROLOGY.** H. Houston Merritt, M.D., Professor of Clinical Neurology, College of Physicians and Surgeons, Columbia University; Chief of Division of Neuropsychiatry, The Montefiore Hospital; Fred A. Mettler, M.D., Ph.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University; and Tracy Jackson Putnam, M.D., Professor of Neurology and Neurological Surgery, College of Physicians and Surgeons, Columbia University. 289 pages. Illustrated. Philadelphia: The Blakiston Company, 1947. Price, \$6.00.

This concise and authoritative résumé of fracture treatment will be a welcome handy reference for students and general practitioners. The material is well organized for handy reference.

The illustrations are adequate and clear.

—S. W. SHIMONEK, M.D.

**HANDBOOK ON FRACTURES.** Duncan Eve, Jr., M.D., F.A.C.S., Surgeon-in-Chief, Nashville, Chattanooga and St. Louis Railroad; District Surgeon, Louisville and Nashville Railroad; Associate Professor of Surgery, Vanderbilt University School of Medicine; Member of the Southern Surgical Society; Member of The American Association for the Surgery of Trauma; Chairman of the Committee on Fractures of the Medical and Surgical Section of the American Railroad Association; Member of the Committee on Fractures of the American College of Surgeons; Attending Surgeon, St. Thomas Hospital, Nashville, Tennessee, in collaboration with Trimble Sharber, A.B., M.D., Attending Surgeon, St. Thomas Hospital, Nashville, Tennessee. 263 pages. Illustrated. St. Louis: C. V. Mosby Co., 1947. Price: \$5.00.

This is an interesting, well written book of less than 300 pages that combines a brief review of neuro-anatomy and physiology with the clinical aspects of neurology. The first portion dealing with examination of the nervous system covers particularly well the cranial nerves. One might wish for more attention to the testing of peripheral nerves, and especially the inclusion of some diagrams of nerve injury.

The remainder of the book deals with anatomic diagnosis. It does this by considering the nervous system segmentally: peripheral nerves, spinal cord, brain stem, et cetera. In each subdivision after covering the anatomy, blood supply, and physiology, there is a brief consideration of diseases and clinical syndromes. In a book this brief there is little space given to details of therapy, but the chief therapeutic agents are mentioned. A valuable chapter is the one on cerebro-spinal fluid giving an extensive listing of cerebro-spinal fluid changes in various diseases.

—D. M. C.



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ENCYCLOPEDIA OF MEDICAL SOURCES. Emerson Crosby Kelly, M.D., F.A.C.S., Associate Professor of Surgery, Albany Medical College; Attending Surgeon, Albany Hospital; Editor, Medical Classics. 476 pages. Baltimore; Williams & Wilkins Co., 1948. Price \$7.50.

All persons doing reference work at some time or another are led astray and must retrace their steps because of incomplete or inaccurate citations to original work. Medical eponyms slow down, and frequently stump, the searcher.

Dr. Kelly, having had these experiences as an author and editor, began to keep a record of references to medical eponyms and to original and classic reports. After verifying each item and accurately recording these references, he has published them so that others may benefit from his findings.

The contents of the book are arranged alphabetically by author, with each identified as to nationality, specialty and dates. Under each author's name is a concise phrase describing his noteworthy contribution, or contributions, to medical literature with the exact title and reference for each. Useful cross references are scattered throughout and there is a subject index in the back of the book.

Dr. Kelly made no attempt to assign priority in descriptions. His search was for the correct titles and exact references to what, in his opinion, are the earliest or the most outstanding contributions to a subject.

While, no doubt, many a reference will have been missed in compiling this book, the author has included over 5,000 names and 15,000 references.

This is a useful reference tool in a medical library where time-saving devices are appreciated and where accurate, verified references are essential.

M. M. P.

DUODENAL ULCER: A SOCIOPSYCHOLOGICAL STUDY OF NAVAL ENLISTED PERSONNEL AND CIVILIANS. Jurgen Ruesch, M.D., and others. University of California Press. Price, \$4.00.

The book reports the results of an investigation of the social and psychological factors in duodenal ulcer patients. Special emphasis is placed on situational difficulties and their relation to the individual's character structure.

Dr. Ruesch is associate professor of psychiatry in the University of California Medical School and research psychiatrist at the Langley Porter Clinic, San Francisco. The book was written in collaboration with Robert E. Harris, Ph.D., Carole Christiansen, M.A., Martin B. Loeb, B.A., Sally Dewees, M.S., and Annemarie Jacobson, M.D.

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**FOR SALE**—Complete x-ray equipment in good condition; also all Victor electrical treatments, several pieces. Time to pay, if desired. Make me an offer on all. Address E-120, care MINNESOTA MEDICINE.

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Clinical Instructor Neurosurgery  
University of Minnesota  
Neurosurgeon Consultant Veteran's Hospital

ELIZABETH M. CRANSTON, B.A., M.S., Ph.D.  
Assistant Professor of Pharmacology  
University of Minnesota

ROBERT W. CRANSTON, M.D.  
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C. O. ERICKSON, M.D.  
Clinical Assistant Professor Psychiatry  
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JANIE FREDRICKSON  
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Instructor Bacteriology and Clinical Laboratory

JULIUS JOHNSON, M.D.  
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